PRINTING EQUIPMENT

Engineer

The WOOD System for AUTOMATIC PAPER FEEDING

The Temperamental Prima Donna of newspaper production is the unwinding web. Often taking first prize as a producer of pressmen's headaches, web problems invariably cause waste and costly delay.

WOOD *Pneumatic* Tension. and the WOOD Autopaster were developed to take the "worry" out of any web. WOOD *Pneumatic* Tension Equipment provides selective, sensitive web control during every run and every splice, by means of powerful but gentle air pressures.

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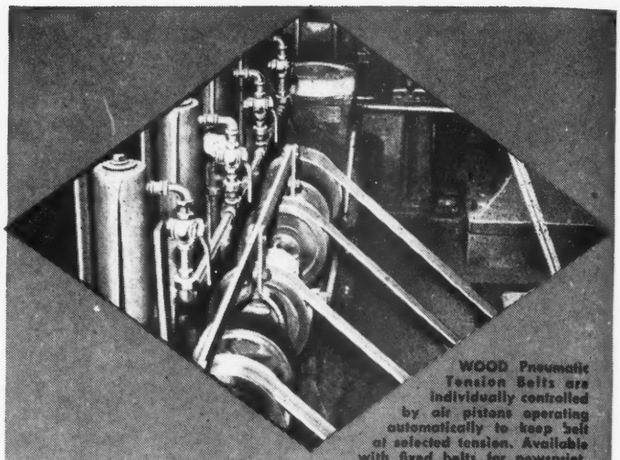
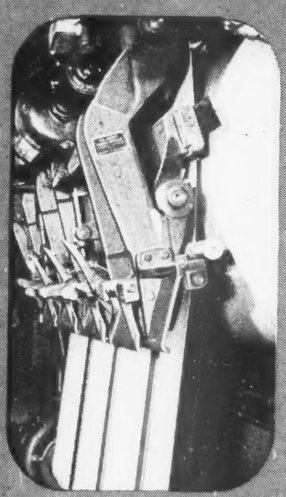
Pneumatic Tensions, Autopasters, Reels

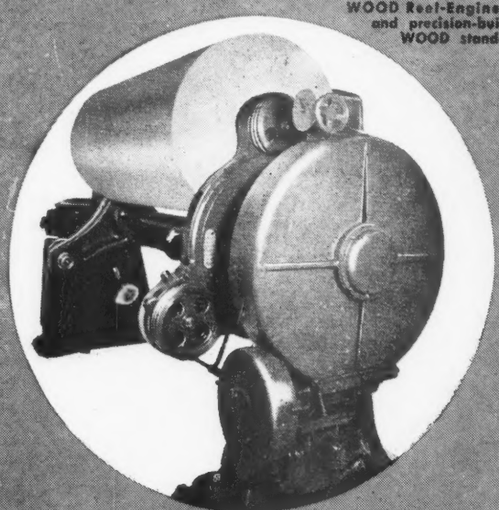


WOOD Pneumatic Tension Belts are individually controlled by air pistons operating automatically to keep belt at selected tension. Available with fixed belts for newsprint, or with running belts for delicate stock or paper converting.



The WOOD Autopaster—Reduces newsprint waste, power consumption, wear and tear on presses and pressmen.

WOOD Reel-Engineered and precision-built to WOOD standards.



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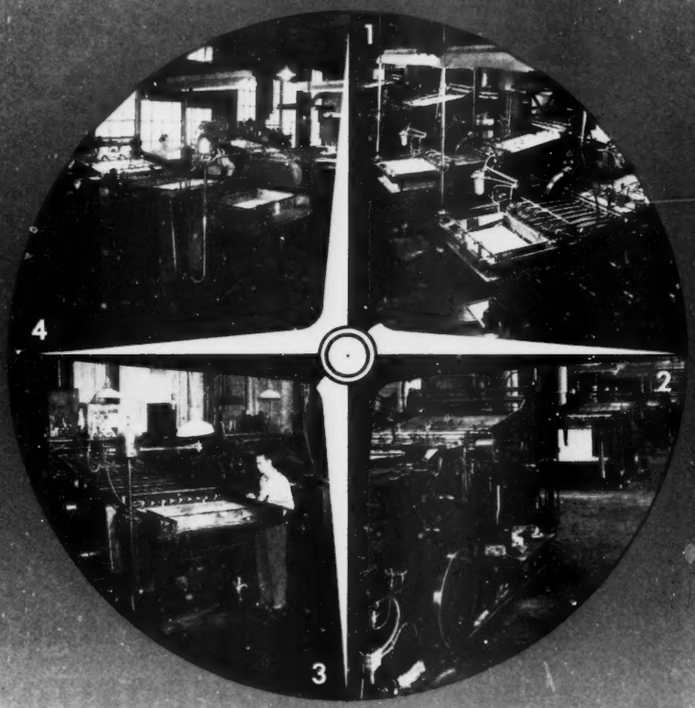

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A TECHNICAL MAGAZINE

NOVEMBER
1949

Volume 79 Number 2

Published especially for management, production and mechanical executives responsible for printing production and the specification of equipment and supplies used in the commercial, magazine, private plant and daily newspaper fields.

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LEADING ARTICLES FOR NOVEMBER 1949

Intrasertor Makes Possible Two-Page Jumps in Newspapers . . 19

Reproduction Proofing Techniques at ITCA Convention . . 22

Technological Typesetting Advancements Demonstrated at ITCA Convention 24

Music—How It Is Printed—II . 26
DR. R. R. VOORHEES

Photo-Typesetting Machine 27
(HIGONNET-MOYROUD)

Equipment and Supplies:
- Vacuum Printing Frame, 29
- Sharpener for Carbide-Tipped Tools, 29
- Adjustable-Speed Drive, 29
- Portable Vacuum Cleaner, 29
- Roller Storage Cabinet, 29
- Kidder 4-Color Celloprinter, 30
- Hamilton Opaquing Tables, 30
- Electric Carboy Acid Pump, 30
- Automatic Spacer Cutter, 31
- Edge Index System, 31
- Portable Tachometer-Cutmeter, 31
- Deep-Etch Trial Kit, 31
- Galley Storage Cabinet, 31
- Paper Drills Announced, 32
- Variable Speed Control, 32
- G-E Unit Bearing Motors, 32
- Paper Roll Elevator Clamp, 32
- Offset Plate File, 32
- Humidifying Units, 32
- Steel Tape Rule, 33
- Overhead Heating Unit, 33
- Hydrotone Ink Selector, 33
- Air Conditioning Bulletins, 33
- Dry Spray Unit, 33
- Air-Conditioning Booklet, 33
- Air Pumps for Feeding, 33
- Adjustment Wheel for Grinding Mill, 33

First List of Exhibitors 34
(Natl. Graphic Arts Expo.)

California Newspaper Plant Equipment Layout and Workflow . . . 35
JAMES I. JONES

Executive Paragraphs 40

All-Day Technical Meeting Features NAPL Convention 42
ADAM HENRI REISER

Improving Workflow in the Plant 44
EDWARD T. SAMUEL

Conference Dates 52

Patents for the Graphic Arts . . . 54

Books Received:
- Reproduction Proofs, 56
- Ferric Chloride Etching of Copper, 58

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Headline News

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Ship 8-lb. trial can for test ☐ Glazcote ☐ "600"

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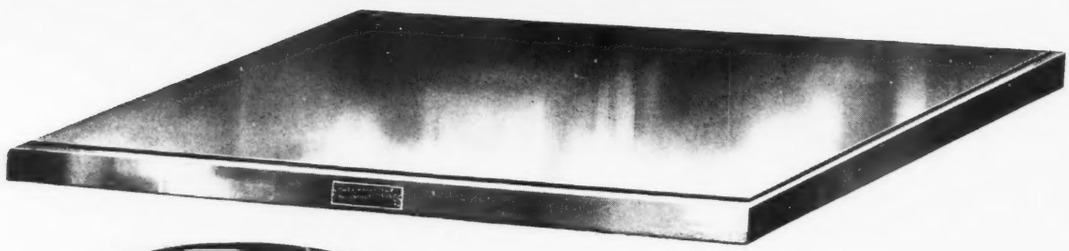

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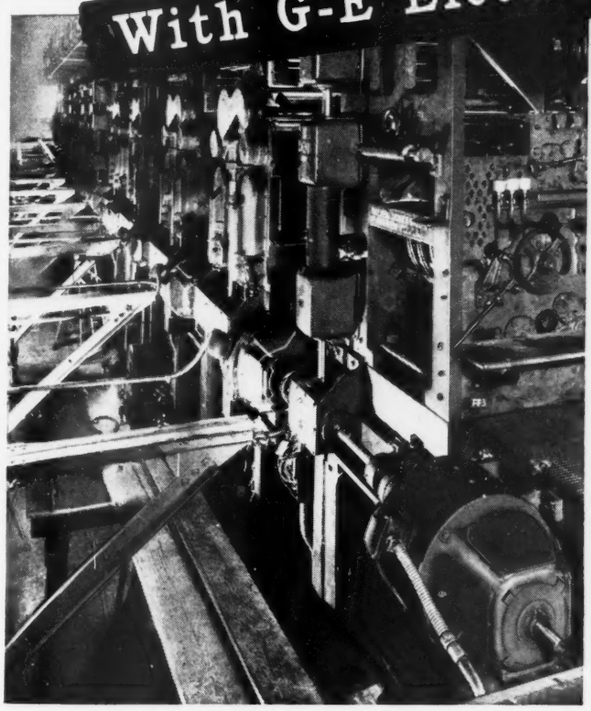
The "Stone Age" is past

Buffalo Courier-Express reports: Installation and Maintenance are Easy With G-E Electronic Press Drive



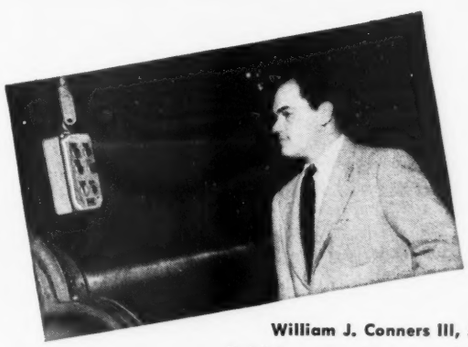
New *Courier-Express* press during installation, showing General Electric d-c motors for individual press units.

From the Buffalo *Courier-Express* come these two reports on their recent installation and start-up of General Electric's Electronic Press Drive:

Says William J. Conners III, Assistant Publisher: **"Our new Electronic Press Drive was installed in short order, and started up without any difficulty. We are delighted with its performance since we put it into regular production."**

And here's what Lee Havens, Electric Maintenance Superintendent, has to add: **"After more than thirty years' experience in operating oldstyle press drives, electronics is a new field for me. However, I'm not worried about keeping the new G-E drive in production. Our simple system of preventive maintenance practically eliminates the possibility of trouble. Since installation, we've had no difficulty with the equipment, and I don't expect any in the future."**

Many leading newspapers are finding that General Electric Electronic Press Drive is the answer to their requirements for flexibility, simplified control, dependable performance, and efficient use of power. They have discovered that they can receive these benefits without adding to installation or maintenance problems. You owe it to yourself to get the details on this revolutionary new system which offers newspaper and magazine publishers so much. **Contact a G-E printing specialist in your nearest G-E office, or send for details by mailing the coupon below. Do it now!**



William J. Conners III, Assistant Publisher, examines one of the push-button stations used for all press control functions.

Apparatus Dept., Section 653-4C
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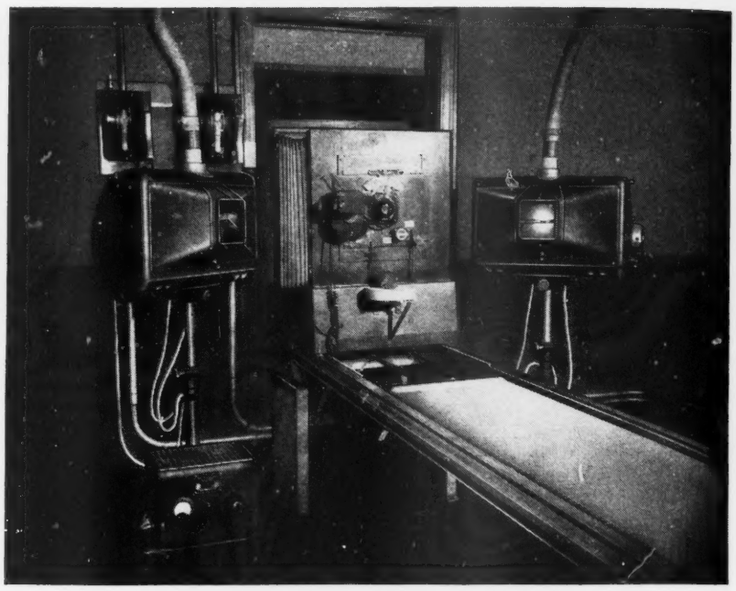

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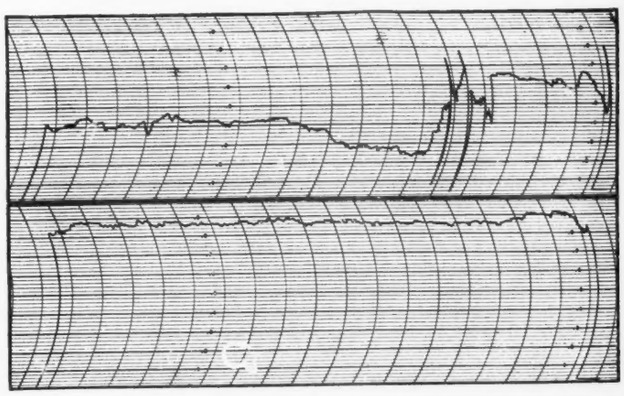

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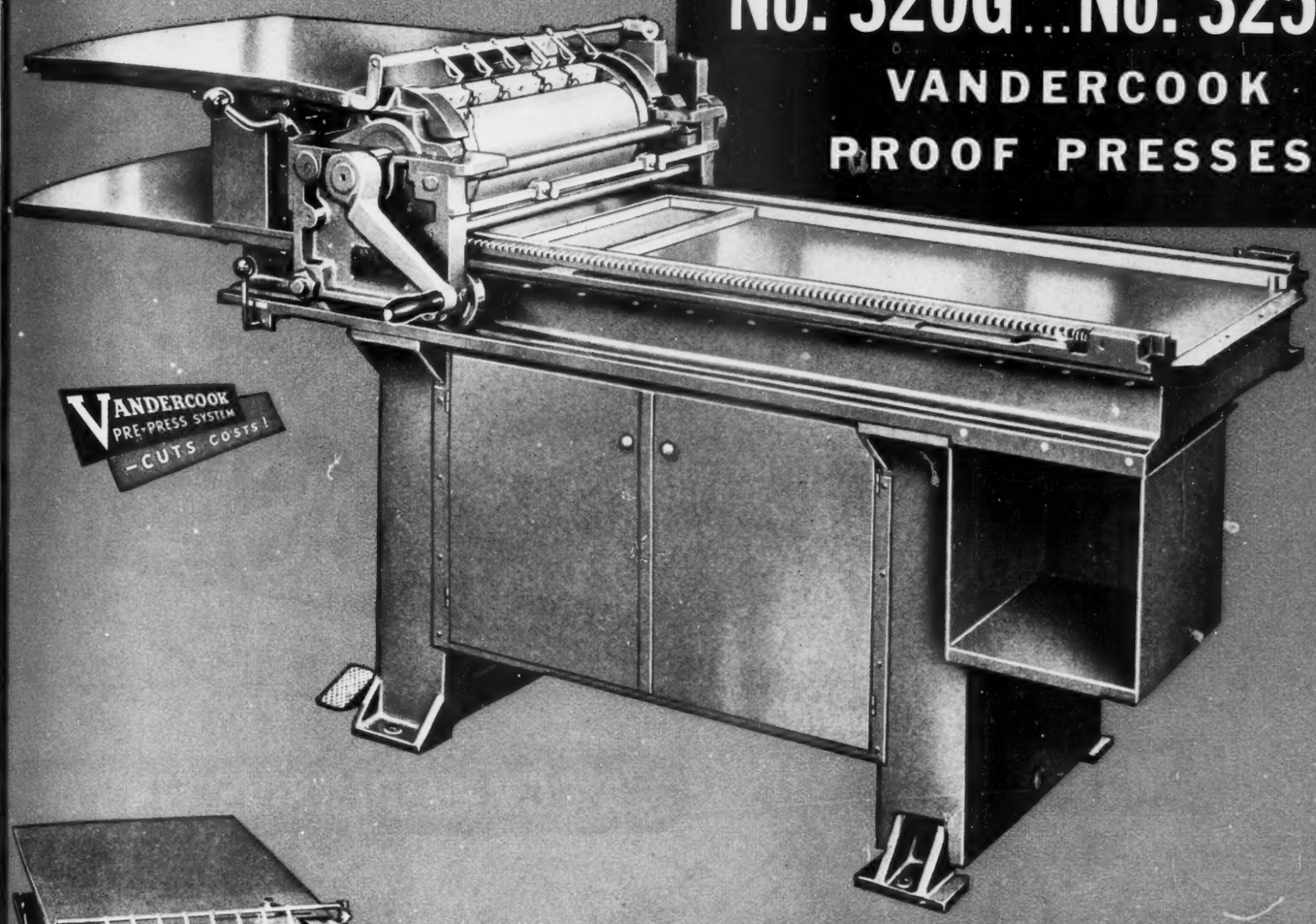

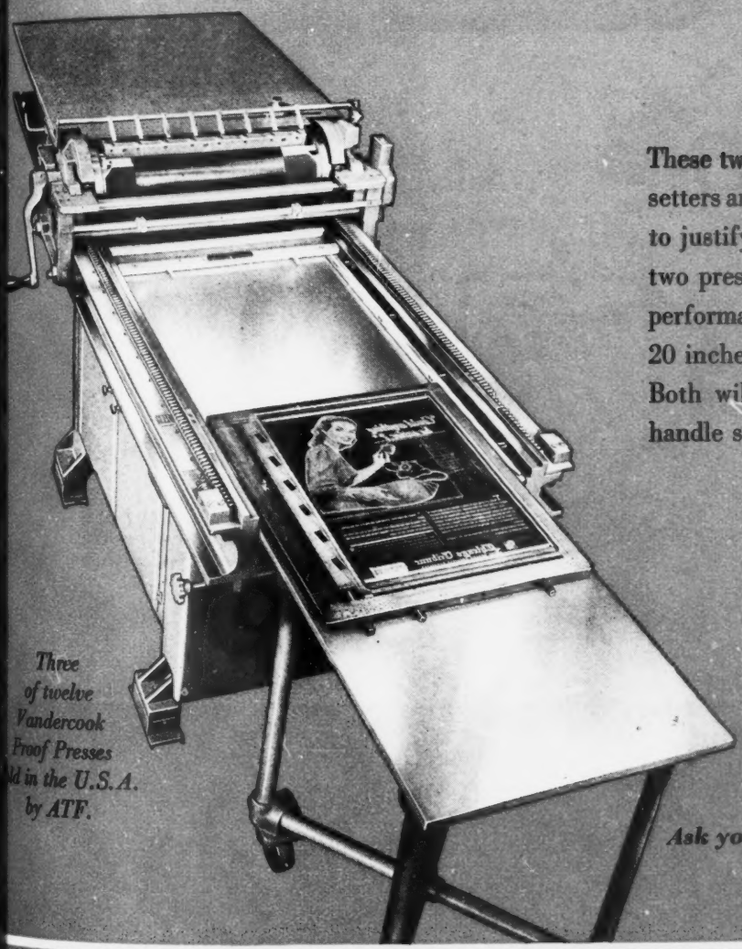

Three of twelve Vandercook Proof Presses ld in the U.S.A. by ATF.

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FOR NEWSPAPER PLANTS

This model is practically the same as the No. 325G excepting that it is specially equipped for newspapers. It will prove a full newspaper page in type high stereotype chase without printing the chase.

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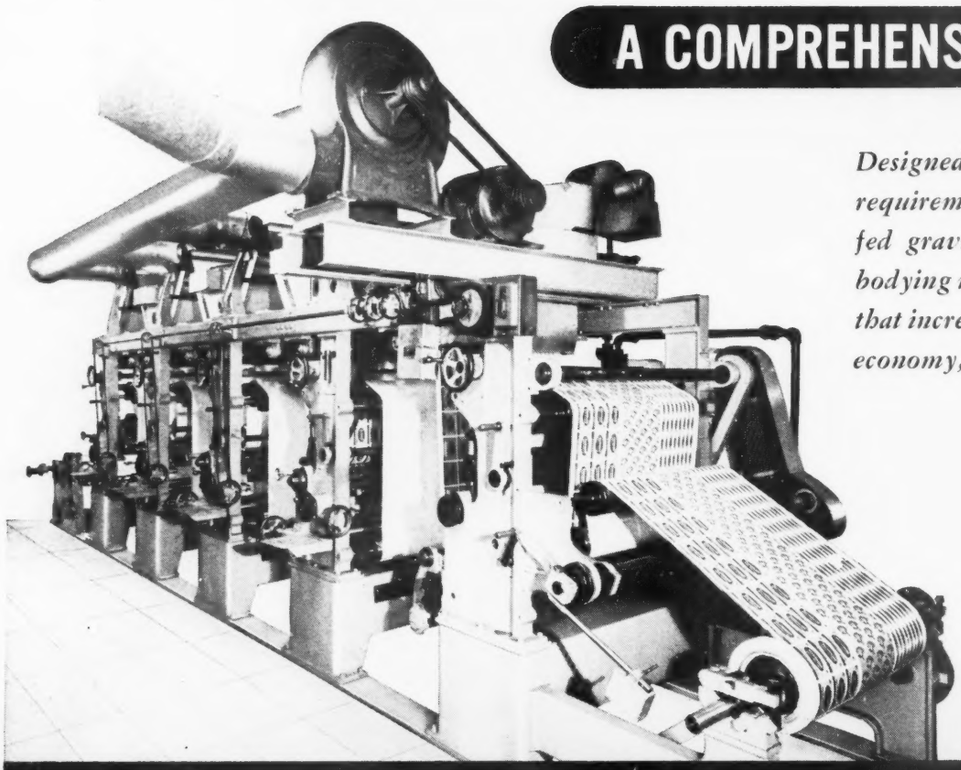

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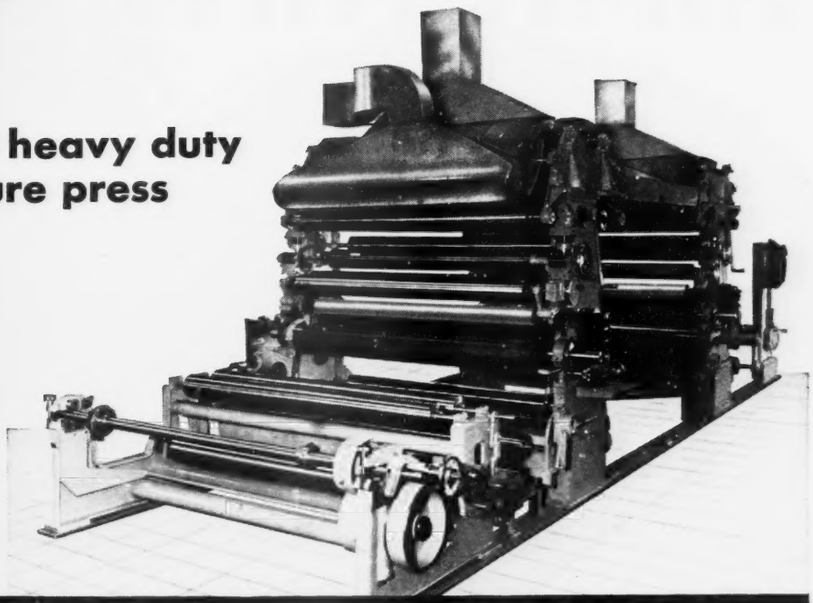

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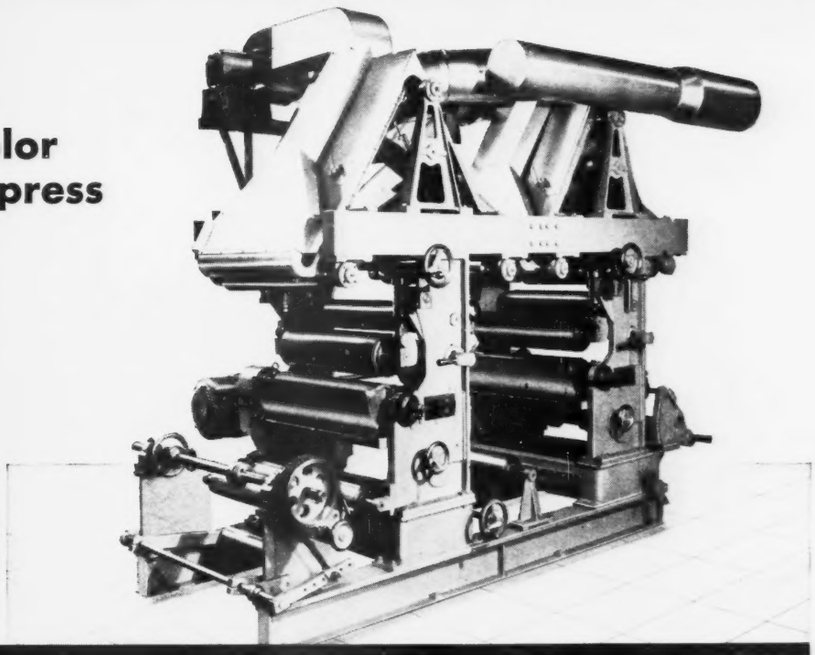

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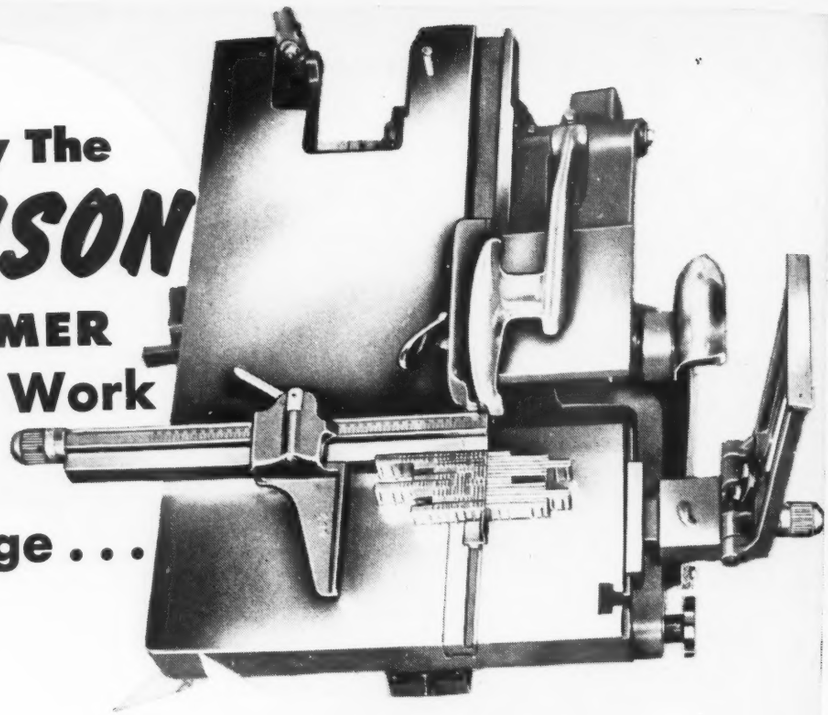

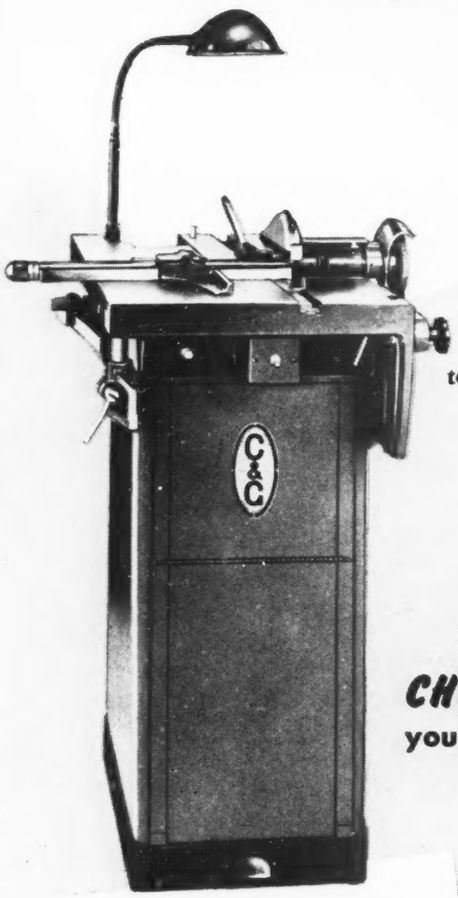

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"OF COURSE I'M NOT PULLING MY OWN WEIGHT"

"I'm a tired old horse and it's much easier to steal a free ride on this nice new truck."

Old printing presses, like the old horse in the picture, cannot pull their own weight in competition with modern equipment. All too often these old machines are taking a "free ride" at the expense of production and profits.

Today's Miehle presses are designed to meet the need for increased production; to eliminate the back breaking part of press operation and at the same time turn out a printed job of the highest quality at lower cost.

Your Miehle representative has some very interesting cost figures on new press production. Write . . . let him show them to you for the good of your own business.

MIEHLE PRINTING PRESS AND MANUFACTURING COMPANY

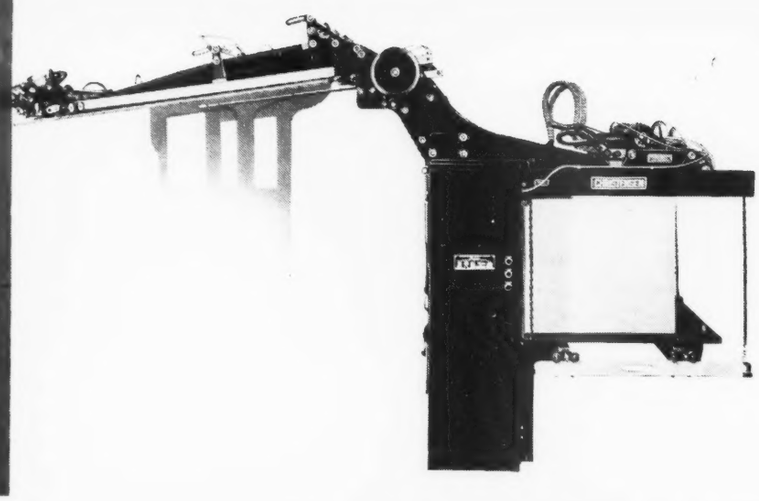
WORLD'S LARGEST MANUFACTURER OF SHEET FED PRESSES

CHICAGO 8, ILLINOIS

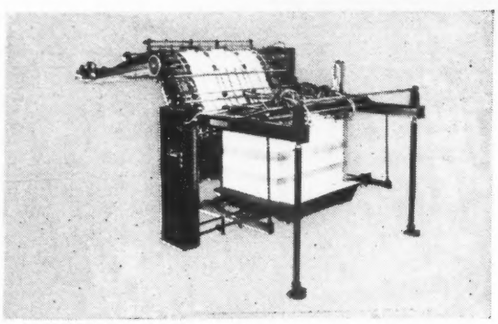
The New Christensen VERTICAL RUN Pile Stream Feeder

•

For Flat Bed Presses and other sheet-fed machines having high feed-in point

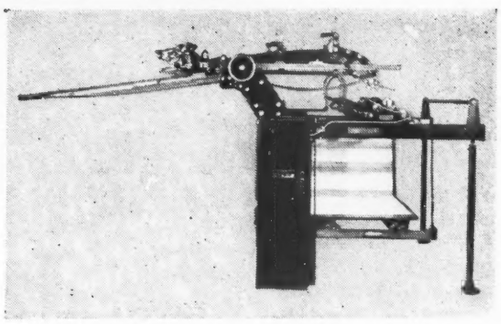


Brings NEW EASE AND CONVENIENCE IN OPERATION and an IMPORTANT INCREASE IN NUMBER OF SHEETS DELIVERED EVERY DAY



The Vertical Run . . . means that on most size feeders, pile height is held to approximately five feet. Operator makes his settings and adjustments *from the floor.* Back columns are used on large size feeders only.

Stream Feeding . . . results in better register, fewer settings required and a profitable increase in number of sheets delivered in any given period.



Feedboard Conveyor Easily Racked Back . . . clearing feedboard for making ready without disturbing tapes or settings. This feature is also particularly convenient in plants having low ceilings.

Other Features include New Improved suction type separators . . . and Vacuum caliper—allows only one sheet to be fed at a time and needs no setting for varying thicknesses of stock.

The New Christensen VERTICAL RUN Pile Stream Feeder definitely contributes to improved efficiency and increased production. May we tell you about it in further detail.

Christensen and Dexter Machines

Sold and serviced by

Dexter Folder Company • General Sales Offices, 330 West 42nd Street, New York 18, N. Y.

SALES REPRESENTATIVES: Chicago, Philadelphia, Boston, Cleveland, Washington, St. Louis

AGENTS: Dallas, Denver, San Francisco, Los Angeles, Seattle, Toronto, Montreal, Winnipeg . . . and in Foreign Countries

Christensen Machines are built by Christensen Machine Company at Racine, Wis.

What Mercury Products mean to your shop...

ore mileage

Easier wash-up

educed make-ready time

Crisp reproduction

niform quality

esistance to swelling

our best bet!

RAPID ROLLER CO.

FEDERAL AT 26TH
CHICAGO 16, ILL.

D. M. RAPPORT
PRESIDENT

Proved Performance

CHECK THESE SAVINGS ON AD DISPLAY COMPOSITION effected by 12 newspapers

through the use of *Matrix Contrast Service*

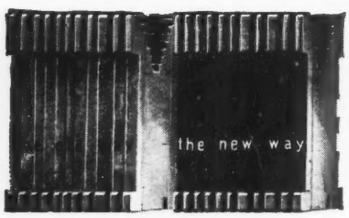
		BEFORE INSTALLATION			AFTER INSTALLATION			
Our Survey number	Total number machines in plant	Lines set	Total errors	Total errors per 100 lines	Lines set	Total errors	Total errors per 100 lines	Per cent reduction in total errors
46	11	2,420	146	6.03	3,281	126	3.84	36.23
52	19	9,261	892	9.63	6,810	474	6.96	27.73
58	49	27,120	1,903	7.02	25,748	1,073	4.16	40.74
107	11	1,680	82	4.88	3,578	92	2.56	47.54
121	13	2,245	121	5.39	2,114	43	2.03	62.34
125	9	2,413	50	2.07	2,930	35	1.19	42.51
131	20	2,887	113	3.91	3,523	95	2.69	31.20
146	15	1,994	105	5.27	1,444	55	3.80	27.89
166	8	2,454	111	4.52	2,957	80	2.70	40.26
174	17	1,304	90	6.90	10,101	273	2.70	60.86
186	20	3,152	128	4.06	9,591	281	2.93	27.83
191	8	3,237	150	4.63	4,072	126	3.09	33.26
	200	60,167	3,891	6.47	76,149	2,753	3.62	44.05

The above figures, accurately audited from original proofs, include only machine composition of display advertising in sizes up to 18-point.

Another important saving is the large increase in OK ads that pass through the composing room without a single error. In the twelve surveys listed above, an average of 36.28% of the ads handled went through OK before installation of Matrix Contrast service. After installation, 59.33% of the ads handled went through OK!

Detailed figures, and in most cases the proofs audited on these surveys, are available for inspection at any time *(subject to authorization of the plants concerned)*.

Uncle Mat says
Proofs stack up because the proofroom is usually behind the composition machines. Wrong fonts continue to cause errors until proofs are read and returned.



Matrix Contrast Service

Empire State Building, New York 1, N. Y.—326 W. Madison Street, Chicago 6, Ill.—1105 Trenton Street, Los Angeles 15, Calif.—Sole licensees of the Percy L. Hill Matrix Contrast Patent No. 1,796,023, other patent pending. European Agents: Funditor, Ltd., 3 Woodbridge St., Clerkenwell Green, London, E. C. 1.

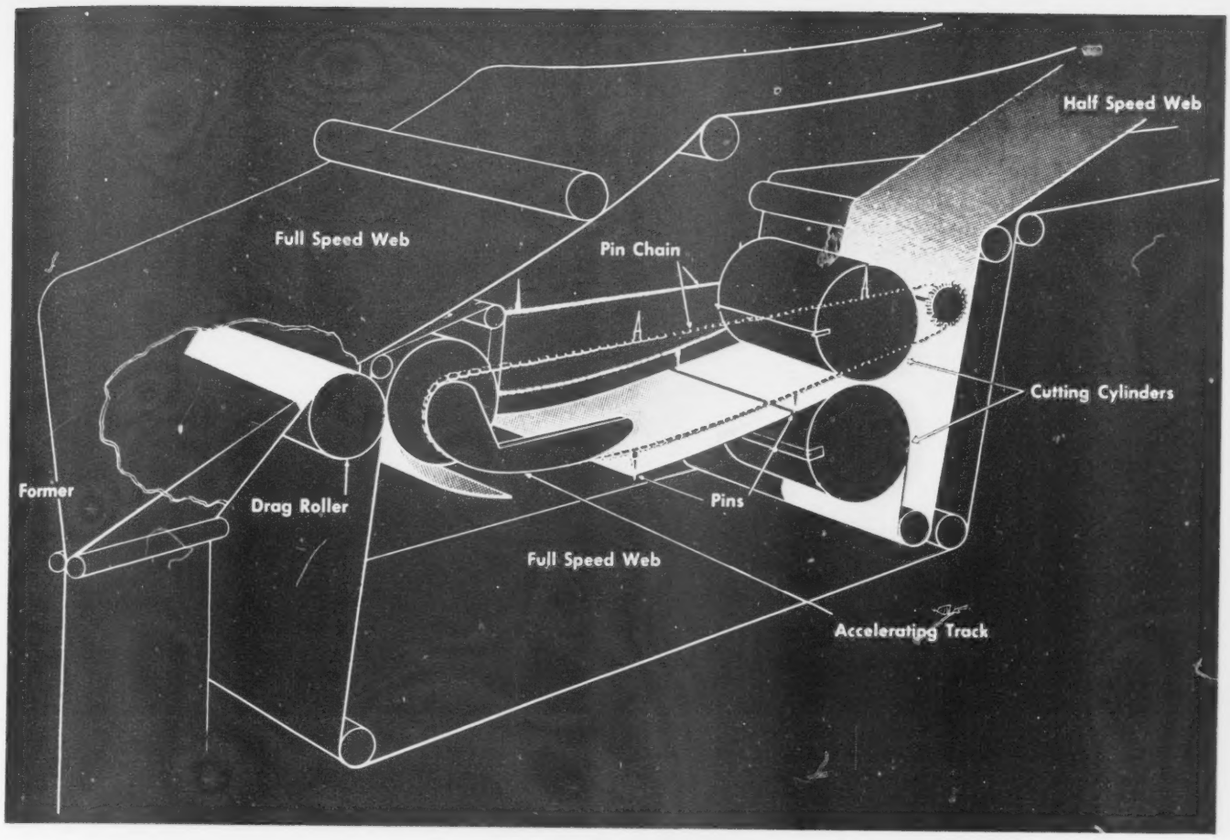


Fig. 1.—Perspective diagram explanatory of the 'Intrasertor' mechanism which is an integral part of the Wood Cosmopolitan Newspaper Printing Press. On a Collect run, the Intrasertor is employed to insert a single sheet consisting of two pages in one section of a two-section paper. The full-speed webs at right are indicated as being fed to the drag roller at left, from which point the associated webs are directed to the former where the first fold of the two-page wide web takes place. This is customary printing press technique.

The Intrasertor mechanism, as stated above, is employed to cut page-length sheets from the half-speed web as shown. While the two full-speed webs may be traveling at say 800 f.p.m., the half-speed web indicated by the darkened areas, is traveling only at 400 f.p.m.

The cutting cylinders cut the web into page-length sheets. The printed sheets are conveyed by the pins extending from the pin chain and are delivered between the drag and stripping rollers in perfect timed relationship to the printed pages on the two main webs.

To understand how the acceleration of the half-speed sheets up to full speed of the two main webs is accomplished, see Fig. 3.

Intrasertor Makes Possible Two-Page Jumps in Newspapers

RECENTLY, the Wood Newspaper Machinery Corporation announced the Cosmopolitan Newspaper Printing Press. The press is rated for the smaller newspaper and was designed specifically for use by them. A new device called the Intrasertor is employed in the press to make it possible to increase the size of a newspaper in two-page jumps when the press is plated and webbed for what is called a Collect run (two section product). The press was illustrated and described in the July issue of *Printing Equipment Engineer*. In this article we present an elementary explanation of the Intrasertor. In addition, if a newspaper of tabloid size is printed on a Collect run basis, the inserted sheet will consist of four pages, and the papers will be increased in four page jumps instead of in eight page jumps as heretofore.

In the language of the inventor, I. Tornberg, who is Vice President of Wood Newspaper Machinery Corporation, the majority of rotary newspaper printing presses are built to accommodate four page-size stereotype semi-cylindrical printing plates across and two page-size stereotype semi-cylindrical printing plates around each plate cylinder. In printing newspapers in a press having a given number of plate and impression cylinders, newspapers can be printed up to a maximum number of pages equal to the number of plates for which there is space to lock them on the plate cylinders.

Now, if these newspapers are printed in what is called a Straight run, the number of pages of the newspaper is only one-half of the total page capacity of the press, since plates on diametrically opposite sides of each plate cylinder are identical. This means that a product is delivered for each one-half revolution of the printing cylinders. On such a run it is possible to vary the size of the product in jumps of two pages each by increasing or decreasing the width of the paper web running through the press in one-page width increments.

When it is desired to print a larger paper, a Collect run is necessary. This means that a first section of the newspaper is carried around the cutting cylinder of the folding mechanism and asso-

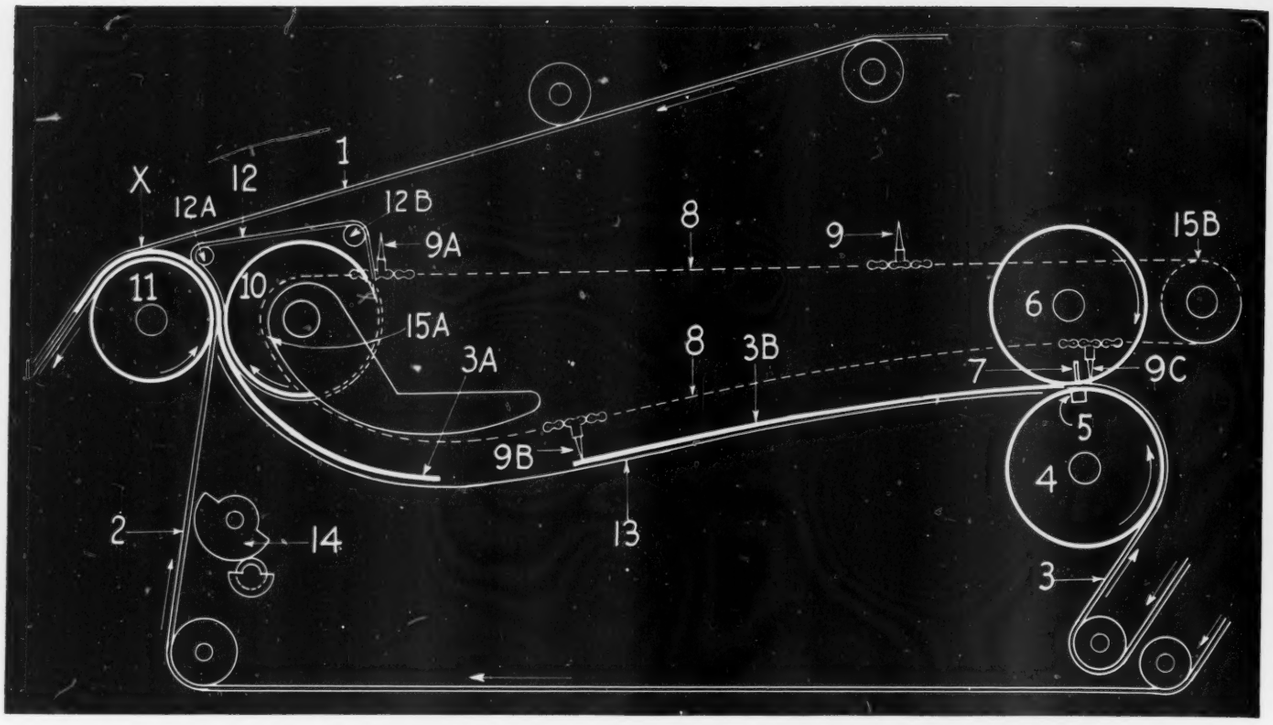


Fig. 2.—Component parts of Cosmopolitan Newspaper Printing Press Intrasertor are illustrated and identified in this side view diagram. The press is hooked up for what is called a Collect run—that is, two sections are being printed and by means of the Intrasertor (which is an integral part of the press) a single sheet (two pages) is inserted in one of the two sections automatically. It should be understood by the reader that the accompanying diagrams have been prepared for illustrative purposes only.

The parts are identified as follows:

1—One of two main webs two pages wide
2—One of two main webs two pages wide
3—Single-page width paper web entering "Intrasertor"
3A—Single cut-off sheet (two pages) entering between drag and stripping rollers
3B—Single cut-off sheet (two pages being conveyed along curved guide)
4—Lower of two paper web cutting cylinders
5—Hard rubber insert against which cutting knife works
6—Upper of two paper web cutting cylinders
7—Paper web cutting knife, which, working against rubber insert *5* in cylinder *4* severs the printed web exactly to page length
8—Sprocket chain (one on either side of curved guide *13*) spaced apart horizontally across the sheet above either edge of the sheet
9, 9A, 9B and **9C**—Conveyor pins which convey sheets between stripping cylinder *10* and drag roller *11*
10—Stripping cylinder around which are arranged two tapes *12* spaced apart sufficiently to engage sheet 3A to insure that it will enter between webs *1* and *2* at *X*
11—Drag roller
12—Stripping cylinder tape (two spaced far enough apart to cover each side of sheet *3A*)
13—Curved conveyor guide
14—Inserted sheet (two pages) pasting mechanism

As has been explained in the accompanying article, the Cosmopolitan Newspaper Printing Press Intrasertor is a device for cutting a sheet (two pages) from the running web which is traveling at half speed, moving the two-page sheet ahead and accelerating its speed to the speed of two other paper webs, and finally feeding the severed sheet in proper position between the two webs at the same running speed as those of the two webs with which it is now associated. By means of the Intrasertor it is possible to jump a newspaper by two pages on a Collect run and insert it into either one of the two sections. The Intrasertor mechanism is mounted horizontally in the upper level of the press just above the former-folder mechanism and above the press units.

First, we'll state that main paper webs *1* and *2* (each two pages wide) meet above drag roller *11* at the point marked *X* just before traveling down into a former. These webs, for the purpose of this explanation, are traveling at a surface speed of 800 f.p.m. At *3* is indicated the single page width web. This web is traveling at half the speed of main webs *1* and *2*, or 400 f.p.m. Web *3* is shown entering between the cutting cylinders *4* and *6* at which point (and at the proper instant) the web is cut into one-page length by the cutting knife *7*. Simultaneously with the cutting operation, two of eight pins, 9C, (one on either edge of the web) pierces the leading edge of the web. The eight conveyor pins, four of which are shown at *9*, *9A*, *9B* and *9C*, are mounted upon two sprocket chains, one of which is shown at *8*, at properly spaced intervals. The two chains also travel at a speed consonant with the web speed.

After the cut-off sheet *3B* has been delivered into the curved guide *13* of the Intrasertor, (for the purpose of this explanation) it is carried forward by pins *9B* and is shown pulling sheet *3B* in the above diagram. It will be seen that pins *9B* pierce sheet *3B* while the trailing edge of the sheet has been separated from the web by knife *7*. For explanation as to how the sheet *3B* is accelerated from half to full speed of the webs *1* and *2* and associated with them, see Fig. *3*.

ciated (or joined in the folder) with a second section of the newspaper, the two separate sections being folded and delivered together on the folder conveyor.

In a Collect operation, printing plates on diametrically opposed sides of the plate cylinders are different. Also, in a Collect run, the size (pages) of the newspaper must be varied in jumps of four pages each. Since the size of the newspaper may vary from day to day, it is advantageous to be able to change the number of pages in the newspaper by two-page jumps. The Intrasertor mechanism in the Wood Cosmopolitan Press makes it possible to increase the number of pages in the newspaper by two-page jump.

Before proceeding with the explanation of the Intrasertor device, it is explained that the Cosmopolitan Press (for the purposes of this article) consists of one and one-half press units. That is, it consists of a regular press unit with two plate and two impression cylinders. Each of the plate cylinders has a capacity of eight page size plates, the full printing capacity of the unit being 16 pages. The half-unit or printing couple as it is called in the trade is fitted with one plate and

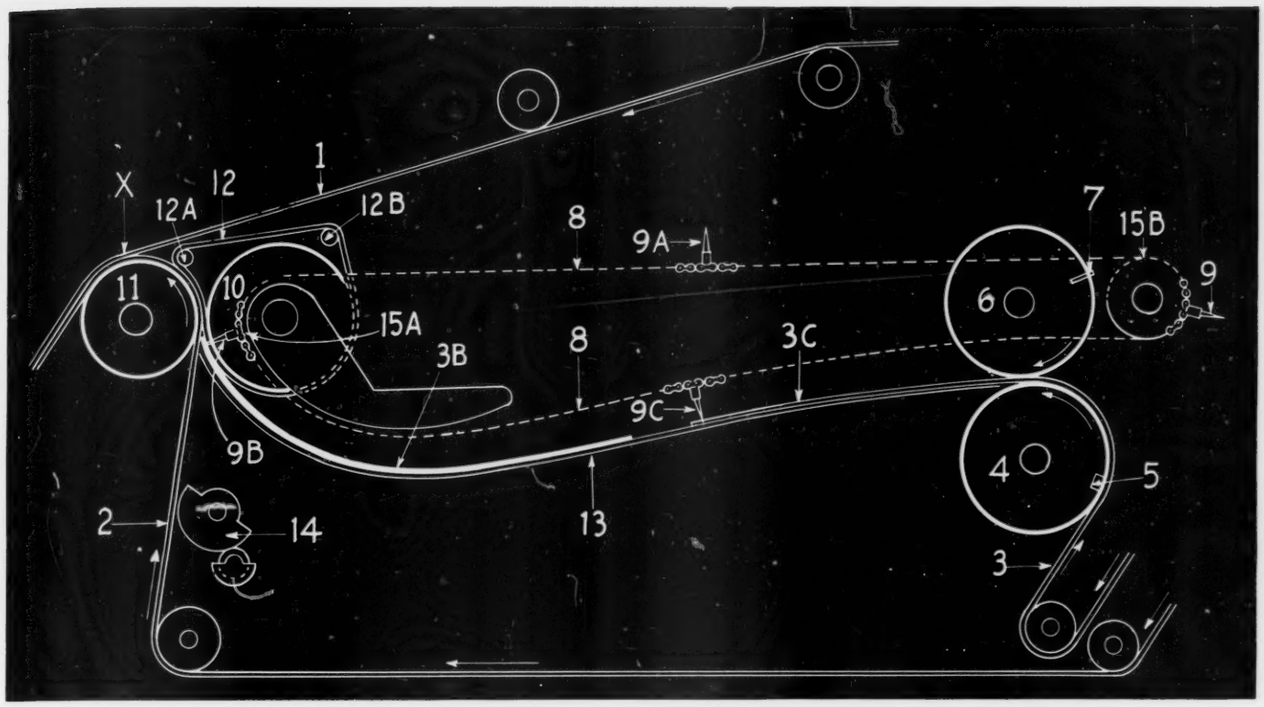


Fig. 3.—As has been explained in Fig. 2, the sheet *3B* has been conveyed along the curved guide *13* by the two pins one of which is indicated at *9B* in this diagram. Here the sheet *3B* is just about ready to enter between the drag roller *11* and the stripping roller *10*. The speed of travel of the sheet has already been accelerated by pin *9B* to equal the speed of travel of main webs *1* and *2*. This is due to the fact that the pitch radius of the path of the chain sprockets *15A* and *15B* is exactly half the radius of travel of the points on the pins *9B* that engage sheet *3B*—that is, half the radius of the stripping cylinder *10*. Thus it will be seen that the acceleration of the sheet takes place approx. between the lower left 90 deg. sector of the circle as represented by the diameter of the stripping cylinder *10*. In other words, the points of pins *9B* where they engage the sheet *3B* are equal in radius to the periphery of stripping cylinder *10*, consequently the acceleration of the sheet is rapid and accurate. While not shown in this diagram, guard devices are present in the construction of curved guide *13* to hold the sheet in line horizontally.

As the leading edge of the sheet *3B* is guided between drag roller *11* and stripping roller *10*, two continuous tapes *12* running around stripping cylinder *10* and rollers *12A* and *12B* propel the sheet 3B between webs *1* and *2*. Meanwhile, the pins *9B* release themselves from sheet *3B* and go on around ready to pierce another sheet in proper timed relationship.

At *14* is indicated a pasting apparatus which can be used if desired for pasting the inside edge of the two-page sheet to the gutter of the main section of the newspaper. The segmental periphery of the pasting disk *14* carries sufficient radial surface to contact web *2* at the proper intervals to apply the paste to hold the inserted sheet. The pasting surface of the disk *14* is of sufficient full diameter to equal the length of the sheet to be pasted in a section. The disk contacts a roller running in a paste fountain so that the pasting operation is entirely automatic.

one impression cylinder and the capacity of the plate cylinder when fully dressed is eight page plates. Presses of capacities larger than twenty-four pages can, of course, be built by adding more printing units.

However, the purpose of the discussion in this article refers primarily to the Intrasertor, the use of which permits the increase of a newspaper in two-page jumps when the press is making a Collect run. This is accomplished by printing an extra paper web in the printing couple; the extra web traveling at one-half the speed of the regular webs. Thus, if the main webs are traveling through the press at 800 f.p.m., the extra web is traveling through the press at 400 f.p.m. When the extra web reaches the Intrasertor, it is first engaged by two pins and then cut into page length sheets, after which the cut sheets are gradually accelerated in speed to the same speed as the main webs (for instance, as above, from 400 f.p.m. to 800 f.p.m.), although the press may be operated at any number of different printing speeds. Thus, while the main webs are traveling at any given speed, the extra web travels at exactly one-half speed until after it is cut into a page size sheet. After the page sheet is cut completely free of the web and still being held positively, speed of the sheet is gradually and continually increased until it is synchronized to the speed of the main webs.

Just as the leading edge of the page size sheets reaches the joining point of the two main webs, and traveling at the same surface speed, the sheet is stripped from its carrying pins in the Intrasertor and placed between the two main webs in proper position.

If the main press unit is comprised of two couples with each plate cylinder four plates wide (eight plates on the cylinder), under ordinary circumstances this would print papers of two, four, six or eight pages of Straight runs. On Collect runs, papers of eight, twelve and sixteen pages could be printed.

In addition, by means of the mechanism provided to permit operation of the supplemental couple at full speed as well as at half-speed of the paper web, the Straight runs could also produce a ten-page and a twelve page newspaper and the Collect runs could also produce a twenty-page and twenty-four page news paper.

When it is not desired to print a two-page jump, the half-unit and the Intrasertor may be disconnected. The half-unit may be employed to print four regular pages in an edition if so desired, in which event the half-unit will operate at full speed the same as the main press unit.

Enrollment at RIT

Enrollment in the Department of Publishing and Printing at the Rochester Institute of Technology is again near record for the 1949-50 year, according to Byron G. Culver, Department Supervisor. With 96 first year students and 99 second year students, the enrollment is close to the record established in the previous year when 198 full-time students were enrolled. Of the 99 second year students, 26 are majoring in offset lithography and 10 in printing design and layout. The remainder are majoring in letterpress with a choice for emphasis on machine composition, hand composition or presswork.

PLANT EXECUTIVES CAN HELP WITH SAFETY MANUAL

READERS of *Printing Equipment Engineer* can participate in a worthy undertaking related to Safety in the Printing Plant. As a joint project, Printing Industry of America, Inc., and the National Safety Council have commenced collecting information on Safety in the Printing Industry. The object is to prepare a manual similar in format to a number of other Manuals published by PIA in collaboration with GPO.

Work of preparing the text is being conducted along three lines: (1) Selling or justifying a safety program to the plant owner or manager; (2) Technique of organizing and administering a safety program in the printing plant, and (3) Specific ways and means for making a printing plant safe, including common hazards found around printing machinery.

Suggestions regarding plant safety, no matter how small they may seem to you as a plant production or mechanical executive will be welcome and will be appreciated by the committee which is preparing the Safety Manual.

Please send your suggestions to George J. Mills, Instructor in Presswork, Carnegie Institute of Technology, Dept. of Printing Administration, Pittsburgh 13, Pa.

Reproduction Proofing Techniques Combed at ITCA's Boston Meeting Held in Boston

EDITOR'S NOTE—Since the ITCA convention in Boston, on October 13, 14 and 15, of which this article is a report of the Reproduction Proof Symposium, Printing Industry of America has published a bulletin entitled *Reproduction Proofs*. See review elsewhere in this issue of *Printing Equipment Engineer*.

AT THE Thursday night October 13 meeting of the ITCA, at Boston's Hotel Statler, a symposium was held on Reproduction Proofing. It was evident, after hearing the various speakers, that, by and large, producers of reproduction proofs for photomechanical processes don't realize the necessity for as near an approach to perfection as possible. The common fault seems to be that if it looks all right to the human eye (the one who actually prints the proof) it is OK for the platemaker. Most proofers don't realize that the camera eye can see imperfections in proofs of which the human eye is not capable.

After adjournment of the Reproduction Proof Symposium it appeared that those in attendance had exchanged valuable information about an exceedingly particular and growingly important branch of the business. Executive Secretary Frank Sherman is to be congratulated upon bringing together for discussion an offset-lith platemaking executive, the producers of equipment and materials and those who actually manufacture the proofs. While no standard specifications for making reproduction proofs were discussed, yet it was evident that all those taking part in the discussions agreed that such proofs should satisfy the requirements of the man who must make plates from them.

Oscar Hoffman, Superior Typesetting Co., St. Louis, Immediate Past President of the International Typographic Composition Assoc., presided over the Symposium. He introduced the first speaker, G. S. Hammer jr., Quality Control Mgr., of Forbes Lithograph Mfg. Co., Boston.

Offset-Lith Man Describes Faults

Mr. Hammer said there was considerable room for improvement in furnishing quality reproduction proofs. The offset and the gravure industries are entirely dependent upon composing rooms for typographic material.

Type reproductions are used by photomechanical platemakers in several ways: (1) By projection in photographing black impressions in the camera; (2) By using transparent and semi-transparent materials; the transparent proofs may be used for printing down directly upon the plate in various ways. In the new method of photo-typesetting it is to be expected that the resultant negatives or positives will yield perfect letter reproduction. He assured his listeners that the platemaking industry will turn to photographic methods of type reproduction when such methods have been made available. He urged ITCA members to supply negatives and positives to lithographic platemakers when the equipment becomes available. It was his opinion that not many lithographers will be interested in installing such equipment.

The main requirements for reproduction qualities in type proofs are (1) Straightness of type lines (without bowed effect) for stripping into straight panels in the printing plate. (2) Perfectly sharp and opaque letter characters. (3) Uniform weight in the printed appearance of the proof with respect to one or more letters or words.

To illustrate his discussion, Mr. Hammer exhibited a number of lantern slides. He explained that proofs should be as sharp as possible and without grayness. He also mentioned that in the offset printing process there is a slight squeeze of perhaps 0.002 in. of the plate against the rubber offset blanket; thus there is a tendency for certain imperfections in letters to become magnified in actual printing.

Mr. Hammer explained that in the case of imperfect letters in proofs, a needle or stylus is used with artist's mediums such as India ink or even printer's ink to cover up the imperfections. This operation requires considerable time of a high-priced man and consequently is an expensive one for the platemaker.

He showed a number of lantern slides. One of these was a greatly enlarged block of type set in Bookman. One word "industry," showed outstandingly heavy in the enlarged image on the screen. Another slide depicted several lines of considerable length which were noticeably bowed in the proof. Another slide showed an imperfect lower case "e" in greatly enlarged form. The face carried the appearance of a cold shot in casting. He queried: "What is the photographer to do when he gets characters like that?" He repeated his previous observation that the camera picks up imperfections in letters and accentuates them.

Paper for Reproduction Proofing

Clyde S. Hunter of McLaurin-Jones Paper Co., Brookfield, Mass., discussed *Paper for Reproduction Proofing*. It was his opinion that the best work of the operator, the makeup man and the proofer is of no use if the paper upon which the type is proofed isn't of proper quality. After considerable research work, his firm developed Relyon Reproduction Paper,

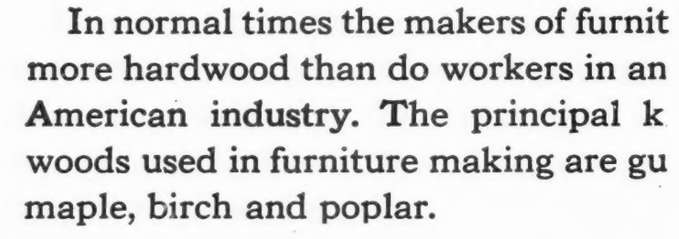

In normal times the makers of furnit
more hardwood than do workers in an
American industry. The principal k
woods used in furniture making are gu
maple, birch and poplar.

Fig. 1.—Enlarged section of type reproduced from reproduction type proof by photoengraving. G. S. Hammer, Quality Control Supervisor of Forbes Lithograph Mfg. Co., Boston, used this slide in his address before the ITCA convention, Boston, to illustrate some of the faults that sometimes occur in reproduction proofs purchased by his firm for offset printing. In this instance, the capitals "A" and "T" and the word "industry" in the third line print too heavily. This is a graphic illustration which shows that whatever is in the copy will be picked up by the camera.

white, approx. 0.006 in. thick, two coats one side and one coat on the other; the paper will lie flat. Specimen portfolios containing sheets of this stock were distributed to all in attendance. In addition, he described stocks to suit varying conditions because everybody seemed to "print proofs differently."

Ink for Reproduction Proofing

Harold M. Cowley, International Printing Ink, Inc., Cambridge, Mass., discussed inks for reproduction proofing. He described the most used types of inks for printing purposes such as those consisting of mineral oil, Vaporin or Heat-Set, Glycol or Vaposet and Linseed Oil inks.

Getting into the discussion of reproduction proofing, he stated that when proofing color work, the same inks that will be used by the production press can be employed, preferably on the same stock and the same color progression that will be used on the production press, by wet proofing. It is important to use strong colored ink in minimum quantity to obtain sharp impressions.

Requirements for inks used for proofing typographical matter are (1) Dense color (to obtain black characters), (2) Sharp printing qualities to avoid heads or feathers at the edges of the type characters, (3) The ink should be quick setting, (4) Good stability, since it appears that proof presses in some plants are washed infrequently. For reproduction proofing, the linseed oil type of ink can be used safely.

On cellophane proofs, however, a much more viscous ink should be used. The ink should possess greater tack to avoid pin holes. The manufacturer adds some blue pigment to eliminate a brownish tone.

Fig. 3.—In his most illuminating address before the Boston ITCA convention recently, G. S. Hammer, Quality Control Supervisor of Forbes Lithograph Mfg. Co., explained the difficulties of the camera man in attempting to do good work when he is furnished unsatisfactory reproduction type proofs. At the bottom is shown a section of a word greatly enlarged which represents the original reproduction type proof. In the center line taken from the same proof is shown what was obtained by underexposing the negative. In the top line is shown what was obtained by a normal exposure in the camera. The image (lower line) was employed by Mr. Hammer to illustrate difficulties encountered by the camera operator with certain types of copy and it's just not a question of a standardized camera technique.

Care of Proofing Rollers

In discussing *Care of Proofing Rollers*, Aaron A. Hobart, Wild & Stevens, Boston, described the various types of rollers available. He said the perfect roller is one that possesses tack, is pliable and remains concentric. It should not be affected by temperature and humidity. The compositor should figure the cost of proof press rollers from the basis of proof impressions rather than that of long life. Rollers should be checked once a day for setting. In washing, care should be taken not to damage the roller surface. Kerosene is about as good as anything for washing rollers. He expressed a preference for a composition covered roller for proofing purposes.

Transparencies

O. F. Duensing, of Vandercook Research, Inc., Chicago—an affiliate of Vandercook & Sons, Inc.—discussed the procedure and numerous problems involved in making transparent proofs. He prefaced his remarks by explaining that in order to avoid being confused with other organizations, the name Vandercook Research, Inc. has been adopted as the official title of the firm rather than Graphic Research, Inc., the name originally chosen.

In beginning his talk, Mr. Duensing emphasized that it was not possible for anyone to supply the names of an ink or paper or acetate which would guarantee

(*Continued on Page 64*)

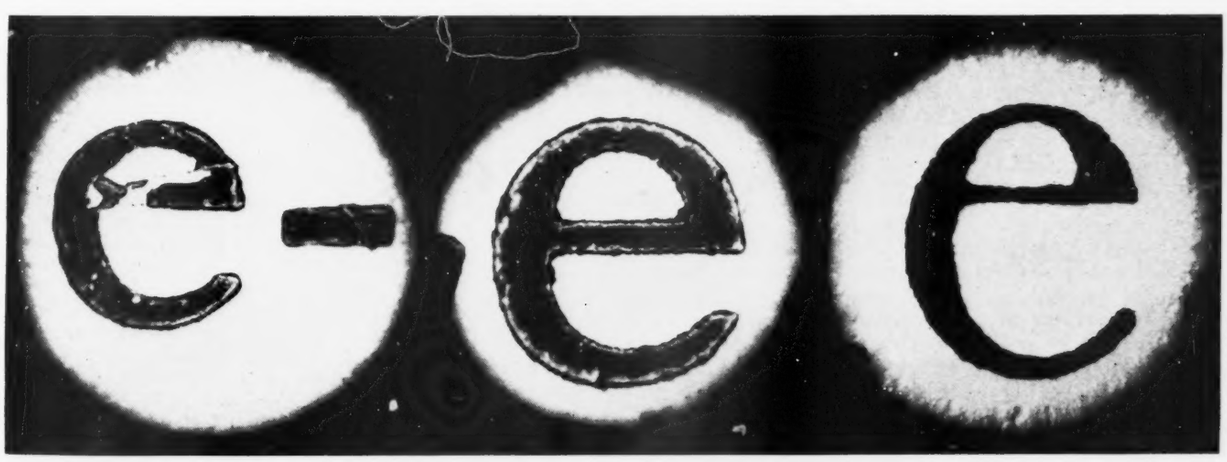


Fig. 2.—In his address before the recent Boston ITCA convention, G. S. Hammer, Quality Control Supervisor of Forbes Lithograph Mfg. Co., discussed imperfections in reproduction type proofs, from the standpoint of the lithographer who must reproduce them in printing plate form. In this illustration are shown several lower case "e" enlargements which indicate that the camera eye picks up imperfections in letters no matter how small. At left is a lower case "e" with a broken bar. While this imperfection may not be readily perceptible to the human eye, the camera eye will pick it up. Thus it will be seen that such things as cold shots, frosty faces, insufficient jettage or venting in line-composing machine metal pot crucible mouthpieces, or faulty nozzle maintenance in single-type casting machines, together with perhaps poorly-conditioned metal and metal temperature can contribute to faulty type. In the center illustration is shown what appears to be a perfectly cast lower case "e"—but there is a halo around the outside edges of the letter, maybe caused by improper ink or unsatisfactory cylinder packing. At extreme right is an enlargement of a lower case "e" which Mr. Hammer stated is satisfactory for camera reproduction.

Technological Typesetting Advancements Demonstrated at ITCA Convention

THE 1949 convention of the International Typographic Composition Association at Boston's Hotel Statler on October 13, 14 and 15, in all probability, was the most important ever to have been held from a technological standpoint. There were approximately 275 trade compositors and interested executives registered. The meeting was dominated by demonstrations of newly developed typesetting devices, better mechanical proofing methods, an improved cost system, and a look-see at a composition plant in Concord, N.H., which utilizes Teletypesetters on the Linotypes and furnishes the customer with fully made up type composition either in Vinylite mold form or in the form of plastic printing plates ready for mounting on the press.

Higonnet-Moyroud Photo-typesetter

Among the major attractions were demonstration of a laboratory model photo-typesetting machine at the laboratories of Graphic Arts Research Foundation in Cambridge. (See separate article in this issue of *Printing Equipment Engineer*.)

ATF-Hadego Photo-lettering Machine

The new ATF-Hadego Photo-lettering Machine was demonstrated by Vice President Fred Hacker, H. T. McGill, Chief Engineer Baker and other ATF assistants. (See illustrated article, p. 38, April 1949 issue of *Printing Equipment Engineer*.) End products of the ATF-Hadego Photo-lettering machine are a film, in negative, positive or reverse form bearing display type lines reproduced photographically, ranging in size from 4 pt. to 115 pt. A five-line film may be produced in 4 min. Operation of the machine is entirely in daylight. Camera is equipped with an F9 lens (148 mm.). Twenty-five type styles will be available. The film holder is of the Logan type and holds film 11½ in. by 16 in., the reproducible area of which is 60 picas wide, by 90 picas deep.

Justowriter

Executives of Commercial Controls Corp., exhibited and demonstrated the Justowriter, the second unit of which automatically retypes previously typed matter automatically by means of a perforated tape. Present from Commercial Controls were President Charles R. Ogsbury, Development Engineer E. O. Blodgett, Research Engineer Frank DeWitt and their assistants. (See illustrated article, page 33, September 1949 *Printing Equipment Engineer*.)

Fotosetter

Intertype Corp. exhibited a large framed photostat of the new Fotosetter in its suite at the Statler. Among those present who explained the workings of the machine were A. T. Mann jr., Vice President; Amos Hoffman, Asst. to Mr. Mann; Herman Freund, Vice President in Charge of Engineering, and other Corporation executives and representatives.

End Product is Printing Plates

On Friday, October 14, approximately 30 members of ITCA availed themselves of the opportunity to fly from Boston to Concord, N.H., where they visited the plant of the New Hampshire Typesetting Co. The plant is under the management of Kimball Loring of Boston's Machine Composition Co. The end product of the plant is made-up composition in the form of Vinylite molds ready for electrotyping, or flat or curved plastic plates ready for mounting on the printing press. For straight composition purposes, Teletypesetter-operated Linotypes are used. Inasmuch as the end product of this plant eliminates the perennial metal problem, the typographic composition executives wanted to see how work in the plant was handled, since no type metal leaves the plant.

FREDERICK H. LUTZ

President, International Typographic Composition Association. Mr. Lutz is President of the typographic composing plant bearing his name in Brockton, Mass.

Opening Session

At the opening convention session on Thursday, October 13, ITCA President Frederick H. Lutz, of Frederick H. Lutz Complete Composing Room Service, Brockton, presided. He introduced Kimball A. Loring, President of the Machine Composition Co., Boston, who extended a welcome to the members. President Lutz then introduced Philip J. McAteer, of New England Electrotype Co., Boston, who addressed the convention upon the subject: *Why You Are Here.* While space does not permit reporting Mr. McAteer's address in full, yet we will present a summary of some of the more important remarks in his resounding address.

Mr. McAteer, in discussing national advertising in all forms, stated he was doing so because typographic compositors are dependent to a large extent upon advertisers for a considerable volume of their business.

Essentiality of Advertising

The speaker stated that "Many attacks are being made upon advertising by false economists, misinformed professors, so-called cooperatives, and others. He asserted that most advertising is in good taste. Occasionally, however, some advertising does offend the consumer. It is these exceptions that furnish the critics with their ammunition. "We (all of us)," he asserted, "must take the lead in combatting these attempts to sow the seeds of discontent—it is a big job."

McAteer discussed the silly argument used against advertising because it increases the cost of merchandising. He related that a business journal, *Sales Management*, made a study of the actual unit costs of advertising in relation to the cost of familiar articles, after conducting a poll to find what the public would guess to be the amount spent for advertising certain individual items. Surprisingly, 56% of the people polled felt that advertising raised the cost of goods.

McAteer continued: "We who know the facts, will agree that by increasing manufacturing volume unit costs are reduced." He enumerated a number of examples as follows: Sunkist oranges, 2/5c per doz.; Camel Cigarettes, 1/4c per package; Coca Cola, 1/12c per bottle; Ethyl in Gasoline, ¼c per gal. He mentioned, also, that advertising hasn't yet been given credit for its part in the war. It did a big job in quick time among the service organizations, bond drives, victory gardens, and fat, tin and paper conservation.

During that part of his address devoted to technological progress in the Graphic Arts industries, McAteer said: "You know, things are changing too rapidly for many of us. Since the war, the strides forward in printing equipment and techniques have been tremendous, and the immediate years ahead will confuse some of us. But we must continuously keep pace."

"While your branch of the Graphic Arts industries has not seen so many radical changes in recent years as other branches, yet you have been advancing steadily in new techniques, he said. Continuing Mr. McAteer said he felt that "Advertising and the many changes in type design have had much to do with those changes." He predicted: "You haven't seen anything yet. Overnight you may find yourselves using tools of which you have never dreamed."

He paid tribute to L. W. (Lex) Claybourn, whom he said had done as much, or more, for the Graphic Arts than any other living individual. "He has been responsible in a large measure for the

trend to rotary letterpress and multicolor printing," he concluded.

His closing advice was: "In the immediate years ahead I would keep my eyes and ears open and I would take for my keynote the word 'Vision—the ability to see.' Use vision in your industry. Use it for your own personal success. Make it a part of your picture of advertising and all of the other factors that make your industry successful."

Photo-Typesetting Machine

During the afternoon, ITCA members journeyed to the plant of the Lithomat Corp., in Cambridge, where a laboratory model of the new Higonnet-Moyroud photo-typesetting was demonstrated. See separate article in this issue of *Printing Equipment Engineer*.

Reproduction Proofing

On Thursday evening, October 13, an entire session was devoted to the subject of *Reproduction Proofing*. For full report of this session see separate article in this issue of *Printing Equipment Engineer*. Since it is likely that the taking of mechanical reproduction proofs and transparencies will be employed in the photomechanical platemaking processes for an indefinite time to come, it appears that ITCA members wish to furnish a good quality product to customers. Apparently, though, some reproduction proofs are not up to the standard required for photographic reproduction. This particular ITCA session should prove of great value to members.

The New Competition

On Friday morning, October 14, ITCA Vice President O. B. Powell, Chicago, presided. First he introduced John A. McLean, Asst. Production Mgr., Government Printing Office, Washington, D.C., who spoke upon *The New Competition*.

While speaking mostly from the standpoint of his experiences at the GPO, Mr. McLean stated that offset-lithography is very much a part of the printing industry. The term "letterpress" is generally intended to cover relief printing as separate from the offset and-or gravure processes.

In referring to the substitute typesetting processes, he said:

"Now the Varityper and the IBM Marginal Typewriter step into the picture with justified lines and assorted type faces, and the so-called duplicating methods have become very much alive. The Lithotype, using type metal characters cast on monotype machines, is presented to the industry; and the Justowriter, being developed with an eye to the growing trend and with the promise of an attractive appearance plus great speed, adds its possibilities to the situation.

"What is this picture that we see forming before our eyes? It is more and more taking the form of the elimination of metal typesetting for the furnishing of reproduction proofs.

"Comes into the situation an approach from another angle. Why reproduction proofs at all? Why not a negative for albumen or a positive for deep etch without the use of a large camera? So, we place into this growing picture the Fotosetter, the Lithomat, and the Rotofoto for the photographic composition of text matter. Does it not set us thinking when we learn that within recent weeks, two Fotosetter machines have been installed outside of the Government Printing Office—one in Fort Belvoir, Va., and another in a large plant in Rochester, N. Y., and that 150 live jobs have been set to date on this machine in the Government Printing Office?

"It is interesting to note that in most discussions regarding the new composition methods, their application to offset printing is almost invariably accepted without question; yet many instances can be pointed out in which by means of photoengraving, film from these machines can be used for letterpress printing of excellent character.

"A halftone negative can be stripped into a page of Fotosetter line film for a photoengraving plate just as easily as any other line, and halftone combinations can be made; and it has been demonstrated that a zinc engraving of the type matter can be assembled with one or more halftones in position to make up a page mounted by means of the new adhesives to an 11 pt metal back. Trimmed and beveled, this becomes an efficient flat plate for use on patent base.

"In analyzing this new competition of photographic composition, we must face one set of facts squarely. For letterpress use, photoengraving must be used, so if we do not set the job in metal type, we must compensate by using photoengraving. One may balance against the other in time and cost. But in offset, not only is metal typesetting avoided, but also the pulling of reproduction proofs; and in these photo type-composition methods, the large cameras are also eliminated.

"The new competitive conditions have been instrumental in the growing numbers of plants using both letterpress and offset. This is well illustrated in the Government Printing Office where 14 presses are now working on offset production.

"Cost accounting operations have been in use long enough now, that in planning work for the plant, relative cost determinations can quickly be made, and assignment of the work to either branch follow. To many of us there are certain types of jobs which have been running letterpress for so many years that they have become symbols of reference. For example, mention of the *Army Register* would immediately bring to mind a book of about 1000 pages, 5 in. by 8 in. double column; type on which was kept standing, with changes made periodically for new editions.

"It was something of a shock to receive recently a requisition to print a new edition of the book by offset from negatives supplied by the Department of the Army. Text had been set in the department by one of the new processes known as Flex-o-print. If the reports of the department as to savings effected through the use of the method are only half true, a step has been taken which has a very important bearing on the New Competition. Regardless of opinions for or against the new page style, the fact still remains that here is a job of 1000 pages no longer to be considered a metal typeset operation, and this is only one example of many. It is similar to what would happen

(*Continued on Page 68*)

Equipment Manufacturers' Production Problems No Different Than That of Newspaper Publishers

"LEARN the American measuring system and how to read micrometers Install the machinery you need to do the job correctly—eliminate inaccuracies and you will then have a better product and consume fewer production hours." This was the recommendation of A. VanderLinde, Hammond Machinery Builders, at the weekly newspaper session of the 25th Anniversary Convention of the Pennsylvania Newspaper Publishers Assoc., Harrisburg, Pa., October 10.

Mr. Vanderlinde described how weekly publishers should apply to their own plants the same techniques of labor saving and greater efficiency that has been forced upon other manufacturing processes in order to keep competitive. New methods and greater mechanization are the real answers to the higher costs in the printing and publishing industry, he said.

Failure to cast stereos to accurate measurements and to saw them to the sizes required in the forms often obliges the makeup man to resaw them to size, he observed as being one of the many typical causes of increasing labor time and costs of production.

Speaking of the printing manufacturing industry, he said; "Actually our thinking in connection with your production problems is no different than our thinking in connection with our own. We must constantly be finding better and cheaper ways of doing our own manufacturing and this not only involves methods, but also tooling, machinery and various types of equipment. This thinking, when transferred into the financial realm, shows that our American standard of living is based upon a high investment per worker."

Music—

How It Is Printed

Zinc Plate—I.
Music Type—II.
Musicktype—II.
Typemusic—IV.

By DR. R. R. VOORHEES

MUSIC TYPE—II

ALONG about the time that the punched-out pewter plate for the printing of music was developed (18th Century) the setting up of music by means of movable pieces of music type came into being. This was definitely to be expected because at an earlier date movable type had been discovered. However, in the case of setting music by means of movable type there were countless problems that did not exist in the case of setting reading matter. Only one who is familiar with music can fully appreciate the countless combinations of notes and rests that can be made. When it is remembered that these notes and rests can be combined in countless assortments of time, then the problem of applying the movable type idea to music becomes apparent. Perhaps the difficulty can be made clearer when it is reported that a font of music type consists of some 400 pieces of type. Contrast that with a font of type for the setting of reading matter and something of the difficulty of setting music becomes apparent.

Music Type Font

A font of music type consists of characters for the many different kinds of notes and rests as well as cleff signs and signatures, all reduced to their indivisible unit. Suppose this is explained. A piece of music consists of five horizontal lines that make up a staff. There is a cleff sign and either sharps or flats to indicate the key as well as two figures, one above the other to indicate the time. Following this there are measures with notes and rests of varying time length which go to make up the piece of music. Since these notes are combined in various ways, it naturally follows that no font of music type could possibly be made that would present separate pieces with combined notes. So in a font of music type we find separate characters for whole, half and quarter-notes but, in the case of half and quarter-notes, these pieces do not carry the stem of the note. Only the note itself is carried with the merest suggestion of a stem. This is made necessary because of the cross lines that make up the staff. Thus to complete a half or quarter-note or a note of lesser time it is necessary to complete the stem. In music type this is done with additional pieces of type, each of which will carry a small segment of the stem.

For the eighth, sixteenth and other notes of lesser time than the quarter note and which carry one, two or more flags or tails, these must be added. In music type they are added by still other separate pieces of type bearing the flags or tails. Where a note is dotted the dot must be added by another small piece of type which generally will carry a small line segment either above or below the dot.

In music there are short intervals in the staff where no notes appear. These are composed by means of individual pieces of type which bear nothing but short horizontal lines.

The slurs and ties, so common in music, are set up in music type from several pieces of type which may be composed to present almost any length tie or slur. And so it goes all along the line.

To set up less than one inch of a single staff of music by means of music type with only three notes in this short space would require at least 24 separate pieces of music type. Perhaps this comparison gives the best idea of the difficulty encountered.

Naturally, a system of setting type so intricate as this and with so many small pieces of type requires compositors of unusual skill. A compositor must be especially trained to set music type.

Music type, something like other type, was cast in different faces. This might not be understood by the uninitiated because to all appearances music is music. For instance, there were fonts of music type in which the notes were perfectly round. Then there were fonts in which the notes were slightly oval with still other fonts made up of notes with extended ovals. These three different faces were called round, oval and extended, thus showing the influence of type in general on this highly specialized form of type. These different faces of music type came all in the same size. But, in addition, the same three different faces of music type were also produced in different sizes for the setting of music of different size staves.

Because of the complexity of music type fonts the fonts were costly. For this reason the actual printing was not done from the type-set forms. After a piece of music was set up in music type, it was proofed and the proof sent to the author, composer or publisher as the case might be for corrections. When the corrected proof was returned, the corrections noted were made in the set-up music and the form was electroplated. All printing of the music was done from electroplates. This was made necessary for several reasons. In the first place, the font of music type was costly. In the second plate the metal wouldn't stand up for even limited press runs because of the smallness of the individual pieces of type and also because the printing surfaces were generally so fine. The lines that go to make up a staff in music are not bold, heavy lines. If music type is new and carefully locked up, the breaks in the lines are not too noticeable. Music type that is old and worn doesn't lock up so the separate segments of the lines lock up into a single line. Thus it was necessary to electroplate the type form and print from the plate to prolong the life of the music type as much as possible. Even at that, music type after it had been used for years, showed far more wear than the average fonts of letters with equal use. Music type can best be compared with fine script type from a wearing viewpoint.

Music printed from type, even at its best, was never comparable with music printed from the punched-out metal plates, so it is not surprising that it never superseded the metal-plate method. It did, however, find a considerable vogue, especially among publishers of gospel hymn books who, to some extent, use it even today.

The manufacture of music type never became anywhere as general as the manufacture of other type. Relatively few cast the type and these have all ceased to exist, or if they still exist, have long since ceased to manufacture music type.

(To Be Continued)

Drying Methods

(Abstracted from a report by Floyd C. Larson, of the discussion *How It's Done By Offset*, at the meeting of the Chicago Craftsmen's Club held in February, 1949.)

EDWARD PAYNE of the Gerlach-Barklow Co., Joliet, Ill., a member of the panel of litho experts, discussed a question about drying methods in the offset-lith printing process. He asserted that heat was likely to interfere with the register and that in the use of sprays, a dry spray was the only suitable thing to use. In web offset however, Payne pointed out that heat was used for drying. Louis Hrabeck of the Sleight Metallic Ink Co., Chicago, another member of the panel, added that in the printing of gloss inks, a dry spray should be used.

(Acme photo)

Laboratory model of the Higonnet-Moyroud-Bush photo-typesetting machine. Seated is Dr. Vannevar Bush of Carnegie Institution, Washington, D.C. Looking on is Dr. Samuel Caldwell, Director of the Center of Analysis at MIT. The machine is located in the laboratories of The Lithomat Corp., Cambridge, Mass. Machine consists of four basic parts: (1) An electric typewriter, (2) A "memory" unit, (3) A counter-justifier which is an electrical computing and control system, and (4) An automatic photographic unit which photographs the letter characters one by one at rapid rate on a sensitized film. The Graphic Arts Research Foundation has been formed to conduct further research and development work. Two prototype models will be in operation by next July, according to President William W. Garth jr., and actual production of machines for the trade is about 18 months away.

Photo-Typesetting Machine

Laboratory model demonstrated to ITCA convention members at Cambridge, Mass., on Thursday, October 13—End product of machine appears to be a negative or positive type film for use in normal platemaking operations.

THIS article is being written after a look-see at a demonstration of a laboratory model new photo-typesetting machine in the laboratories of Lithomat Corporation, Cambridge, Mass., on Thursday, October 13. The demonstration was arranged for the benefit of members of the International Typographic Composition Assoc., which held its 1949 meeting at Boston's Hotel Statler, October 13 to 15.

The end product of the laboratory model machine, at the moment appears to be a film, positive or negative, which after development bears the lines of the desired width or widths. The film may then be used in normal platemaking procedures by the photoengraving, offset or gravure process. The maximum line width of the laboratory model is 5 in. or 30 picas. On the final machine any length of line can be composed.

The machine (which as yet has not been officially given a name, although informally called the Lumitype) is the invention of two French communications engineers, Rene A. Higonnet and Louis Moyroud, who have been associated for several years with the Lithomat Corporation of Cambridge, Mass. After the war, these engineers came to Cambridge. Subsequently, they found that Dr. Vannevar Bush of the Carnegie Institution of Washington, D.C., had been working along similar lines. It is understood that Messrs. Higonnet, Moyroud and Bush have pooled their patents with the newly formed Graphic Arts Research Foundation, Inc.

In any event, a couple famous scientific names are associated with the new project—those of Dr. Bush and Dr. Samuel H. Caldwell, Director of the Center of Analysis at the Massachusetts Institute of Technology. Drs. Bush and Caldwell are inventors of the remarkable differential analyzer for solving complicated mathematical equations.

It was explained that Higonnet and Moyroud have developed a type-writer-actuated photographic type composing machine which will be designed to produce photographic positives or negatives in any family of type, in any size of type with automatic equi-distant line justification to any pre-determined length within the limits of maximum line length of the machine.

In describing the machine, it was stated that the technology of the new method brings together the scientific advances of a number of fields. These were enumerated as follows: "High-speed stroboscopic light source, high-quality photographic and optical elements, the electric typewriter, and well-tested automatic telephone components which, combined with simple mechanical parts and commercially reliable electrical circuits form a machine of flexibility and versatility."

The Lithomat (or Lumitype) system consists of four basic parts: (1) An electric typewriter, (2) A "memory" unit, (3) A counter-justifier which is an electrical computing and control system, and (4) An automatic photographic unit which photographs the letter characters one by one on a sensitized film. It also

This is to show how the length of lines can be varied at will.
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The point size can be changed without changing the point set merely by changing the position of the lens.
The point size can be changed without changing the point set merely by changing the position of the lens.

The Specimen lines reproduced above by photoengraving are exhibited to indicate sponsors' claims with respect to flexibility of the Graphic Arts Research Foundation's photolettering machine. They are reproduced same size from a prospectus issued originally by Lithomat Corporation, Cambridge, Mass. They were composed on the original laboratory model.

appears that in the present laboratory model the decimal system is employed rather than the American point system. It is stated, however, that the point, decimal or any other system can be used without change.

Financing Program

As of September 15, it was reported that about 140 firms have subscribed about $125 thousand to the new Graphic Arts Research Foundation. Subscriptions still are being received. The firms represented in the financing of the project consist of newspaper, book publishing, book manufacturing, lithographic, magazine, trade composition and captive printing fields.

Formation of the Foundation

In order to finance further research and developmental work, the non-profit Graphic Arts Research Foundation, Inc., has been formed. Officers are as follows: William W. Garth jr., president and treasurer; Mr. Garth is president of Lithomat Corporation, Cambridge manufacturers of offset-lith paper printing plates. William I. McGowan is vice president; Charles M. Ganson, secretary; Harry F. Sommers, assistant treasurer, and Varnum Taylor, assistant secretary. Dr. Caldwell is director of research.

Directors of the Graphic Arts Research Foundation, Inc., are: Dr. Vannevar Bush, Dr. Samuel H. Caldwell, Director of The Center of Analysis and Professor of Electrical Engineering at the Massachusetts Institute of Technology; Robert B. Choate, Publisher of the Boston *Herald* and the *Traveler*; William W. Garth jr., President of the Lithomat Corporation; Rene A. Higonnet, Co-inventor of the new photographic type process; Howard Knight, President of Livermore & Knight, lithographers of Providence, R. I.; Henry A. Laughlin, President of Houghton Mifflin Co., Boston book publishers; Kimball Loring, President of Machine Composition Co., trade compositors in Boston; Roy Moore, President of the Brush-Moore Newspapers, Canton, O., and Colonel E. W. Palmer, President of Kingsport Press, Inc., book manufacturers, Kingsport, Tenn.

The Machine Itself

First, before trying to explain (as much as permitted) about operation of the laboratory model machine, we want to report a statement made by President William Garth of the Graphic Arts Research Foundation. In talking to a session of the ITCA, he said: "There are 5000 relays in some modern dial telephone circuits, while less than 40 relays are used in this new photo-typesetting machine. The wiring actually is compliplicated, but there is approx. one chance for error in one million operations. If anything goes wrong with a unit, the construction of the machine is such that it will be a simple matter to replace the unit quickly. The services of an engineer will not be required to operate the machine." However, Mr. Garth did state it was planned to maintain service on outstanding equipment.

As has been stated above, there are four major parts in the equipment: (1) An electric typewriter, (2) A "memory" unit, (3) A counter-justifier which is an electrical computing and control apparatus, and (4) An automatic photographic unit.

The operator sits before an electric-type of typewriter. When he depresses the keyboard keys two functions take place—the typewriter types the characters on paper just as is done on the conventional machine; also, as each character is typed on the paper its set-width is coded and stored in a "memory" device.

The Lumitype system is based on units of 0.01 in. (actually two-tenths of a millimeter). Thus the total width of each letter in hundredths of an inch is registered when the key for each letter is struck by the operator. Likewise, when the spacebar (for spaces between words) is depressed, the word space units are also stored in proper sequence in the "memory" unit just the same as the varying unit widths of the letter characters. The Monotype spacing system is employed.

Counter-Justifier

Meanwhile, the counter-justifier (the electrical computing and control apparatus) takes account of the set-width required for each letter and word space between the words. As the line is typed, an indicating dial on the keyboard records by increments (units) progressively the number of units occupied by the letter characters and the word spaces. When the line approaches completion, the operator can see whether or not he has room enough left to include a word or syllable of a word and hyphen. Now, having typed the maximum number of words which will "go" into the line, the operator depresses a special key. The counter-justifier goes into action. Switching elements in the counter-justifier add the number of units required for the words and spaces between the words. This total number of units is then subtracted from the maximum number of units required to fill the line. For instance, we'll assume that the line being composed is 3 in. (approx. 18 picas) wide; the total number of machine units in the line is 300; now, assuming the number of units as represented by the letters which have been composed in the line totals 295, and there are five word spaces in the line, there would be a total of 5 additional units (each 2/10 of a mm. or approx. 0.01 in. wide) needed to fill out the line to justify it to the 3 in. width.

As is stated above, the counter-justifier subtracts the composed number of units (295) from the total number of units in the pre-determined line length (3 in.). The 5 space units are divided by the number of spaces between the words (in this instance it is 5). The device then distributes the five units and adds them to the existing five word spaces to expand the line to 3 in. If the number of units needed to fill the line are unequal to the number of spaces, the device automatically distributes the spaces commencing at one end of the line until the extra units are exhausted. The maximum variation of spacing within a line is one minimum space unit, undiscernable to the eye or under considerable magnification.

Meanwhile, the operator having finished the line described above, devotes his attention to the next line, the counter-justifier sends its signals to the automatic photographic section of the machine. The completed line is scanned and the photographic apparatus in motion.

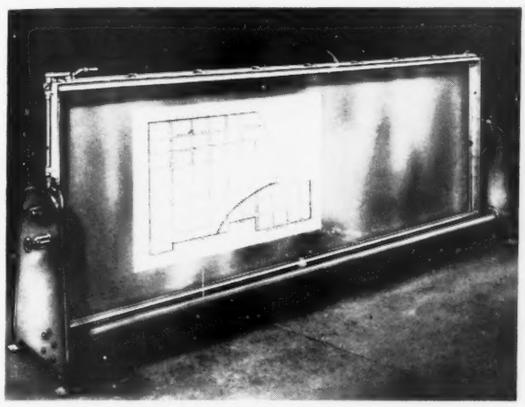
Photographic Unit

The photographic unit consists principally of a vertically positioned 6 in. glass disk. Inset radially through the disk are photographic negatives of all the characters in the usual font of type consisting of capitals, lower case, figures and points; the disk revolves continuously. Set at right angles to the disk is a high speed stroboscopic lamp which emits flashes of 2 millionths of a sec. duration. In other

(*Continued on Page 60*)

EQUIPMENT & SUPPLIES

FILL OUT THE POSTCARD — If you wish additional information concerning equipment, supplies and/or technical literature please fill out and mail the self-addressed postpaid postcard at the back of this issue.



Improved model of the Bruning Vacuum Printing Frame featuring an automatic position holder and counterbalanced frame.

Vacuum Printing Frame

USED for contact printing upon sensitized paper, cloth, metal and other materials is an improved model of the Bruning Single Action Vacuum Printing Frame announced by Charles Bruning Co., Inc. The improved model features an automatic position holder and counterbalanced frame. The position holder consists of a tapered spring bolt which automatically locks the frame in the proper plane. The frame is unlocked by pulling the knob which controls the tapered spring bolt, permitting the operator to move the frame from one position to the other.

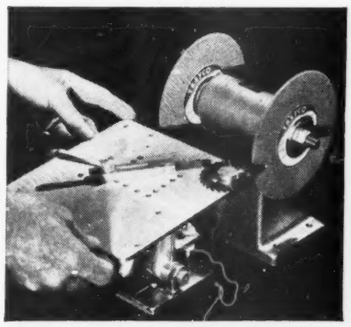
Permanently greased and sealed, frictionless-type ball bearings on trunnions permits the heavy frame to be turned with little effort, claims the sponsor. The frames are available in 16 standard sizes, with printing areas from 44 in. by 62 in. to 56 in. by 146 in. Other sizes can be made to order.

Sharpener for Carbide Tipped Tools

ANNOUNCEMENT has been made recently by Treyco Products of the Model 135 Sharpening Fixture for sharpening carbide tipped tools, cutters, and all types of circular saws from 1½ in. to 12 in. in diameter, and the Model 300 dustproof, ball bearing Grinding Wheel Stand.

Features of the sharpening fixture include an 8 in. square table top; a tilting table which may be set up to 80 deg. either side to meet the requirements of different types of saws and tools; an adjustable stop which, the sponsor claims, limits the amount of swivel to the grinding wheels for uniform grinding depth on each tooth; and a series of holes in the table top which are located to accommodate any size and style saw or cutter tooth to bring them up to one focal point on the grinding wheel.

The grinder stand is designed for two grinding wheels, one on each end of the shaft. In this way, states the sponsor, one grinding wheel with a 45 deg. angle on one side for sharpening cross cut or fine teeth on combination saws. The other wheel is 5/16 in. wide with a radius for sharpening rip saws and large teeth on combination saws. The centerline of the stand's shaft is 1 in. back of the front of the base, which is claimed to allow free movement of the sharpening fixture from one wheel to the other.



Treyco Model 135 Carbide-Tipped Tool Sharpening Fixture with cutter being sharpened. Holes in table top are for various size tools and saws.

Adjustable-Speed Drive

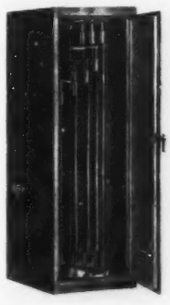
AN adjustable-speed drive for a.c. circuits is illustrated and described in an 8 page bulletin issued recently by Reliance Electric & Engineering Co. Six specific control functions available with the Reliance V*S Drive and nine specific applications in as many different industries are cited and illustrated in Bulletin No. 311. Printed in two colors and black, the bulletin also contains data on constant torque and constant horsepower available in units from ¾ to 200 h.p. in size, together with typical graphs to illustrate.

Portable Vacuum Cleaner — Breuer Electric Mfg. Co. has announced the Tornado Portable Vacuum Cleaner of which the entire unit is carried by a person for cleaning in close, confined areas. Available in four sizes, equipped with ⅓ h.p., ⅗ h.p., 1 h.p. and 1⅓ h.p. motors, in weights ranging from 7 lbs. to 16 lbs. Equipment consists of the cleaner, woven shoulder strap, hose connector with 4 ft. of rubber hose, flat fibre nozzle, aluminum cleaning nozzle, soft hair brush, dustproof bag, and special rubber nozzle to be attached to make the cleaner a powerful blower when need arises.

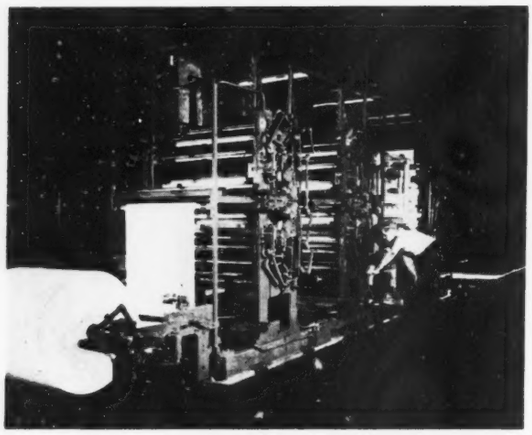
Roller Storage Cabinet

HAMILTON MFG. CO. has announced a Roller Storage Cabinet equipped with a revolving turntable which will accommodate 12 cylinder press rollers of various lengths up to 72 in. The ball bearing-operated turntable facilitates removal and replacement of press rollers. Lower turntable roller support is a cup shaped base which catches and holds any drippings from the rollers.

Upper ends of rollers shorter than 72 in. are supported by brackets which are slidably adjustable up or down on the center turntable column. Ventilating louvres in the door of the cabinet permit adequate air circulation while the rollers are in the storage cabinet. Overall size is 26 in. wide, 26 in. deep, and 80 in. high.



Hamilton Roller Storage Cabinet with revolving turntable for accommodating 12 press rollers.



Designed for printing the Brazilian edition of *Readers Digest* in Portuguese is this ATF-Webendorfer web-fed offset press.

ATF Press for Brazil

AMERICAN Type Founders has announced completion of the third in a group of ATF-Webendorfer web-fed offset presses designed for production of foreign editions of *Readers Digest*. This latest press is to be used in the plant of Cia Litografica Ypiranga at Sao Paulo, Brazil, for printing the Brazilian edition of the magazine in Portuguese.

The press is described as a 25 T., two unit machine with both folder and sheet delivery. The 35 in. web is claimed to run in excess of 400 ft. per min. The press delivers 22¾ in. cut sheets folded to *Readers Digest* size, making a former fold, then a double parallel fold. It delivers two up of a *Digest* size 16 page signature or 32 page total, two colors to a side. The press also will print from all two rolls, delivering two up of a 32 page signature or 64 page total, one color to a side. Capacity is 14,000 to 16,000 double parallel fold products per hour.

The ATF press is equipped with heat-set ink rollers and a unitron electric dryer. After the web goes through the dryer it runs through low-temperature water-fed cooling rollers. A Reliance variable speed converting unit is used for converting a.c. power to d.c.

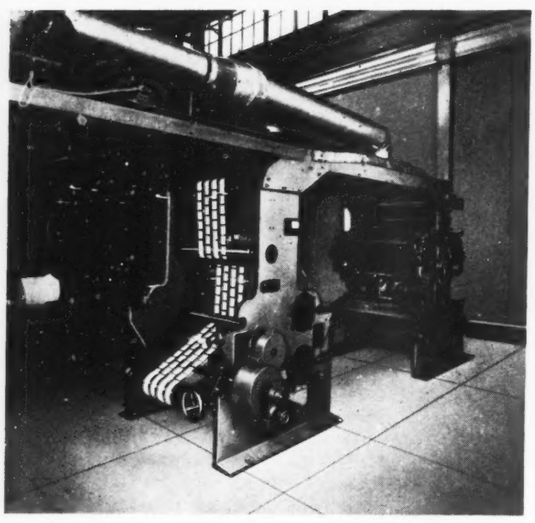
Kidder 4-Color Celloprinter

DESIGNED primarily for printing on Cellophane, but capable of handling all grades of paper and lightweight board stocks, is the 4-color Celloprinter aniline press announced by Kidder Press Co. Feature of the press is the plate cylinder release arrangement. A hydraulic control valve allows the operator to release all the plate cylinders from the web.

Register in the lateral and web travel directions is controlled by handwheels. Adjustment of lateral and longitudinal registers is 3/16 in. in either direction and may be operated while the press is in motion. Sponsor claims the "squeeze" of the plate to the web or the fountain to the plate can be made to fractions of a thousandth of an inch.

The drying system of the Celloprinter provides for drying of the printed web and for partial drying in-between colors. A gas fired sealing unit locks the printing to moisture-proof Cellophane and a water-cooled roller cools the web after it has passed through the drying unit and sealer.

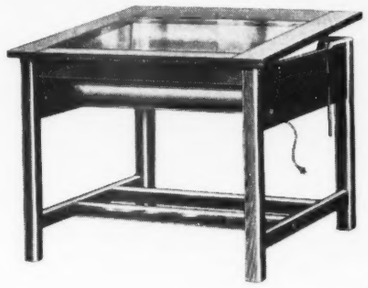
It is claimed that the press operates at speeds up to 500 ft. per min. Specifications: max. web width, 32 in.; max. printing width, 30 in.; cylinder circumference range, from 8 in. to 24 in.; choice of gear pitch system between 10 d.p. pitch or ¼ in. circular pitch.



Kidder 4-Color Celloprinter aniline press for printing on Cellophane, all grades of paper and lightweight board stocks.

Hamilton Opaquing Tables

SEVERAL sizes of the glass-topped, fluorescent-lighted opaquing tables have been announced by Hamilton Mfg. Co. The table bases are constructed of golden oak, while the plate glass table tops are framed by basswood. Undersides of the glass surfaces are sand-blasted.



Three variations of the glass-topped, fluorescent-lighted opaquing tables have been announced by Hamilton Mfg. Co.

Lighting, from underneath, is by daylight-type fluorescent tubes.

Table No. 251J1 top measures 48 in. by 36 in. overall with glass surface 36 in. by 24 in. This is a four-leg table 37 in. high at the front edge with rear edge of top adjustable to desired working height.

Table No. 251J2 top measures 31 in. by 32 in. overall with glass surface 24 in. by 22 in. This is a center-support table with top adjustable in height from 32¾ in. to 42¼ in. and top slope adjustable to required degree.

Table No. 251J3 consists of the top only, a portable working surface to be used on any regular table or desk. Overall size is 38 in. by 31¼ in. by 3⅜ in. with glass surface 36¾ in. by 24 in.

Electric Carboy Acid Pump — Belke Mfg. Co. has announced an electric carboy acid pump for removing acids, alcohols, bleaches and other liquids from carboys. Pumps are movable from one carboy to another and are furnished with a 110 v., 60 cy., a.c. motor. Turning on the motor switch causes the compressor to build up air pressure in the carboy, forcing a flow of acid out through the pipe. The flow of acid can be stopped by pressing the flow stop lever which releases the air pressure in the carboy. Sponsor claims a pressure release valve prevents the air pressure from going over 3 lbs. The pipe, which touches the acid, is replaceable and is available in lead, hard rubber or Saran.

Automatic spacer cutter which is hydraulically operated and electronically controlled, announced by E. P. Lawson Co.

Automatic Spacer Cutter

HYDRAULICALLY operated and electronically controlled is the automatic spacer designed for the Lawson 46 in. and 52 in. Hydraulic Clamp Cutters announced by E. P. Lawson Co. The spacer cutter is equipped with a hexagonal bar which permits six individual set-ups for cutting. Each set-up contains all the electronic signals necessary for any one series of cuts. By turning the six-faced bar, another set of predetermined cutting signals is placed in position for automatic operation. Any number of cuts and trim-cuts can be set, states the sponsor, limited only by the size range of the machine.

Once the desired signals are set, the hydraulically operated back gauge moves the lift of paper into position for the cut. This movement is electronically controlled by an electric eye. When the back gauge reaches the cutting position, a green light flashes the "GO" signal and the operator makes the cut. The back gauge then automatically moves forward to the succeeding cutting or trimming position.

Instead of using the adjustable stop signals, the operator can place on the spacer bar a Vinylite strip upon which the cutting positions are marked. The marks on the Vinylite strip serve as electronic signals. After the cutting job is completed, this Vinylite strip is filed with the plates, eliminating the need for setting up the signals when the job is re-run. A snap switch disconnects the spacing mechanism, permitting the cutter to be used for all-purpose work without disturbing the spacing set-up.

Edge Index System

AN EDGE index system in which symbols of one to three parallel lines bled to the edges of the indexed pages are employed, has been announced by Morris R. Machol. The Index consists of one, two and three line symbols on the page edges which are opposite a key, containing letters or other classifications, on the cover or fly leaf of the book or catalog. Up to 100 classifications in one book are possible with the Machol Edge Index.

Confusion is eliminated, states the sponsor, since each symbol differs in the number of lines from the one above and below. The reader obtains the pages or section desired by turning to the classification key and then spotting the corresponding marks on the page edges which line up with the marks designating the desired section.

Vertical spacing on the classification key is accomplished by a double column of letters such as shown in the illustration. This makes the symbols easier to distinguish according to the sponsor. The symbol lines which bleed off the page edges are printed along with the page content.

Machol Edge Index system. The person looking for "Store", for instance, puts his finger or thumb near the end of the "S" symbol and opens the book at that place.

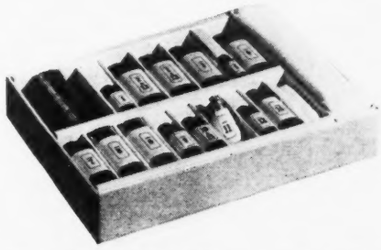
Portable Tachometer and Cutmeter

CLAIMED to assure accuracy of better than plus half of one per cent of full scale value in measuring either surface speeds of machinery in f.p.m. or shaft speeds in r.p.m., is the portable M1200-F electric tachometer and cutmeter announced by the Electric Tachometer Corp. The sponsor also claims the same accuracy is maintained at both low and high speeds over the entire range of from 0 to 5000 f.p.m. or 0 to 25,000 r.p.m.

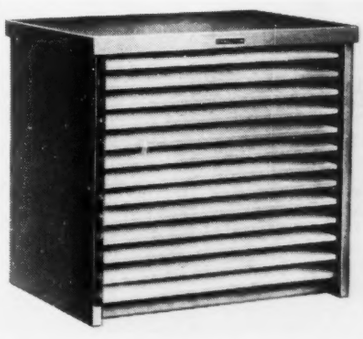
In many applications, states the sponsor, such as in the measurement of motor speeds, it is practical to mount the indicator permanently in some convenient, remote location. The standard cable connecting the generator and indicator may be lengthened to as much as 500 ft. The tachometer is self-contained and requires no batteries or other external power source. It consists of a d.c. magneto generator that produces a voltage proportional to the speed being measured, calibrated in conjunction with a laboratory type indicator having four overlapping speed ranges.

Application of the instrument to most types of rotating equipment is made possible by a cutmeter wheel, extension shaft, and two styles of driving points. The assembly is housed in a quartered oak carrying case.

Portable electric tachometer and cutmeter for measuring surface and shaft speeds of rotating equipment announced by Electric Tachometer Corp.



Deep Etch Trial Kit—Harris-Seybold Co. has introduced a Trial Kit of Harris deep etch litho chemicals to offer lithographers an opportunity to investigate the deep etch process step-by-step without a large investment. Included in the kit is a 20 page, illustrated instruction manual, plate swabs, cheesecloth, cellulose towels and a complete unit of Harris deep etch litho chemicals. Each of the kits contains sufficient supplies to make several medium-sized deep etch plates for actual press runs.

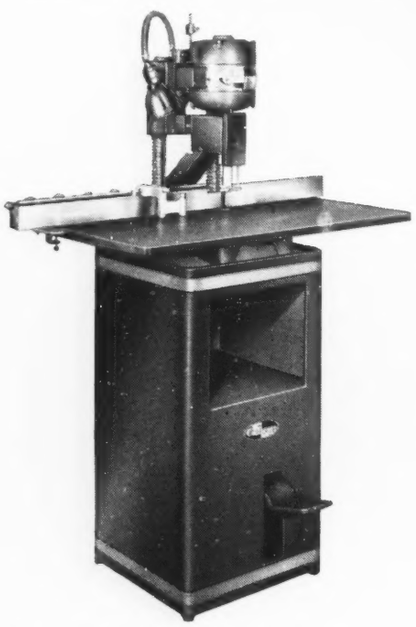


Galley Storage Cabinet — Recently announced by Hamilton Mfg. Co. is a galley storage cabinet with a reinforced steel top measuring 42½ in. wide by 25½ in. deep. Underneath the top are 13 steel storage shelves which the sponsor claims will accommodate galleys of any width or depth. Each shelf is numbered and symbol will be furnished with each cabinet on request. The cabinet is 36 in. high.

Two Paper Drills Announced

TWO paper drills designed to provide full scale capacity in the smaller commercial shop have been announced by The Challenge Machinery Co. The Style J hand power is operated by a hand lever, while the Style JF foot power by a positive action foot treadle. Both drills have a full size table and a 2¼ in. back gage to take a 2 in. lift of stock.

Both styles are equipped with a six-stop finger trip gage. The min. distance between successive holes is ⅜ in. and the min. distance from drill to side guide is ¾ in., while the max. is 18½ in. The machines will handle the standard Challenge hollow drills. The Style J is available with or without the stand. The Challenge Flexolite is included as standard equipment on the Style JF. Both machines have attachments for slotting and cornering. A removable stop bar with a graduated scale provides for set-ups. Chips are disposed of through the revolving hollow drill and are ejected into a container at the back of the machine.



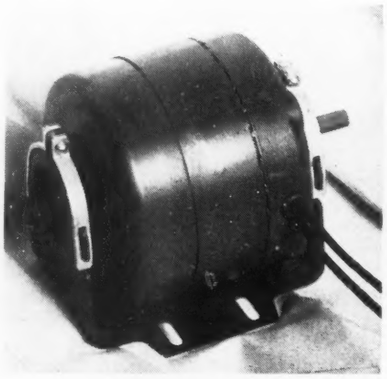
Style JF Challenge Paper Drill operated by a foot treadle is designed for the small commercial shop.

Variable Speed Control

REEVES Pulley Co. has announced the Reeves Vari-Speed Jr., an attachment for converting any standard constant speed motor of ⅛ to 1½ h.p. into a variable speed drive. The control unit comprises a disc assembly which includes a stationary disc, sliding disc, tension spring and spring cover. An adjustable motor base can be supplied, if required. The unit uses any standard driven sheave or grooved pulley and any standard section "A" or "B" V-belts. Available in six sizes, up to 1½ h.p.; speed ratios up to 2¾:1.

G-E Unit Bearing Motors

GENERAL Electric announces a life-time oil-lubricated, shaded-pole motor designed for operation in any position—shaft up, down, horizontal, or at any intermediate angle. The motor can be used, states the sponsor, as drives for exhaust fans, cooling fans, unit heaters, condenser cooling, and space heaters, as well as for small pumps, agitators and blowers.



Lubrication system provides a constant flow of oil from a reservoir to the bearing surfaces regardless of the position of motor. Other features include a unit-bearing construction in the shaft end of the motor; treated stator windings of Formex (R) insulated wire; and vibration-absorbing resilient end rings.

The motors are available in either open or totally enclosed construction. Ratings range from 25 millihorsepower (1/40 h.p.) through 1/12 h.p. at 115 or 230 v., 1050 or 1550 r.p.m., 60 cy.

Paper Roll Elevator-Clamp

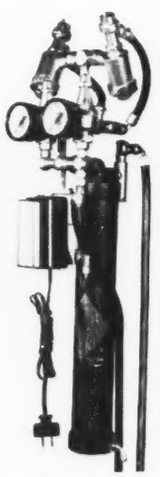
AN elevating paper roll scoop and clamp capable of handling and stacking rolls of paper and newsprint up to 50 in. in diam. and weighing up to 5500 lbs., has been announced by Towmotor Corporation.

In operation, the blade of the hinged paper scoop is inserted under the roll which is then held tightly by a hydraulic clamping arm. Transported into position for use or storage, the roll can be tilted from end to side position or vice versa and raised as high as 230 in. to required storage level. A standard Towmotor lifting mechanism is used. The scoop is manually adjusted for a tilt of 0 to 3 deg., and is constructed to allow the load to roll off into position when clamp is released. The unit illustrated was built for a large container manufacturer.

Elevating paper scoop and roll clamp capable of raising a roll of paper as high as 230 in.

Offset Plate File —A line of steel files in which Multilith or Davidson Masters are hung vertically for protection from being scratched has been announced by Mim-e-o Stencil Files Co. Masters are securely held to hangers by spring clips. The hangers rest on nickel plated hanger tracks. Each hanger will file two masters, or master and negative, and is equipped with index tabs to facilitate filing and finding. Sponsor claims the files protects masters against corrosion due to absence of pressure and scientific ventilation. Illustrated is the Rolaway model with capacity of 500 masters. Other models have capacity up to 1400 masters.

Humidifying Units — Suitable for atomization of water, chemicals, insecticides, etc. are three sizes of humidifying units announced by Paasche Airbrush Co. The units will diffuse up to 1, 2 and 3 gals. of water or other liquid per hr., respectively. These capacities are claimed to be sufficient to control the humidity within 2 per cent fluctuation in areas of 15,000, 30,000 or 45,000 cu. ft. of space. The required air pressure is 6 cu. ft. per min. at 40 lbs., supplied by any suitable air compressor.



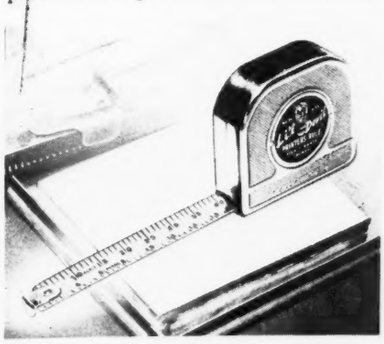
Recent Goss Installations

The Goss Printing Press Co. has announced the installation of a Goss-Duplex Dek-A-Tube press at the Quebec (Canada) *Chronicle-Telegraph*, said to be the oldest newspaper in North America. The Dek-A-Tube purchased by the Canadian newspaper is of 16 page capacity and is designed for the average newspaper in the medium size field. A complete description of the press appeared in the October 1949 issue of *Printing Equipment Engineer*.

Another Goss installation announced recently was a 47 ton Goss tubular type press installed at the Watertown (S.D.) *Public Opinion*. The press is said to have a capacity of 20,000 newspapers an hour and will print in three colors and black. The *Public Opinion* added a weekly full-color comics section last Spring.

Steel Tape Rule

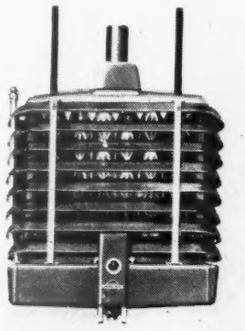
DESIGNED to cover all generally used measurements in the printing trade is the Li'l Devil steel tape rule announced by Carlson & Sullivan, Inc. The tape is graduated in agates and picas on the top side and in inches on the



Steel tape rule, graduated in agates and picas on the top side and in inches on the reverse side.

reverse side with graduations in 1/16 in. The blade is 4 ft. in length to reduce the weight, with numerals and markings etched in black on specially treated steel.

Manufacturer claims the blade may be replaced without opening the case. The blade is enclosed within a die-cast, chrome-plated case. Another feature of the Li'l Devil is the swing-tip which the sponsor states, allows the tip to be swung aside for easel-edge marking, butt-end measurements, or for any measurement where the tip is not needed. Other features include automatic friction brake which keeps blade extended when in use and centralized coil control for easy operation.



Overhead Panelray — Designed for heating working areas is the Overhead Panelray announced by Day & Night Div., Affiliated Gas Equipment, Inc. Sponsor claims the gas-fired heating unit utilizes infra-red rays and provides instantaneous heat that warms occupants and solid objects regardless of air temperature. It is further claimed that these infra-red rays traveling in a straight line and at the speed of light, can not be diverted by drafts or air currents. By a series of louvres, the infra-red rays are directed downward. The unit is automatic, completely vented and A.G.A. approved. Heating surfaces are porcelain enameled inside and out.

Hydrotone Ink Selector

A SPECIMEN book of BBD Hydrotone Inks for aniline and rotogravure printing of tissue, kraft and other absorbent stocks, has been issued by Bensing Bros. and Deeney. The book shows 30 different standard colors and numerous 3-color combinations. Manufacturer claims that Hydrotone Inks require only water as a solvent for press wash-up. The inks are used on gift wraps, decorative paper, bags, etc.

Air Conditioning Bulletins

PACKAGED air conditioners for a wide variety of applications are described in a series of bulletins issued by the Air Conditioning Dept. of the General Electric Co. Each of the bulletins describes and illustrates the units and gives specifications, ratings and dimensions. The 2, 3, 5, 7½ and 10 h.p. air conditioning units are included in the colorful, 8½ in. by 11 in. bulletins. With the exception of the 2 h. p. unit, the conditioners can be adapted to provide winter air conditioning by the addition of a heating coil.

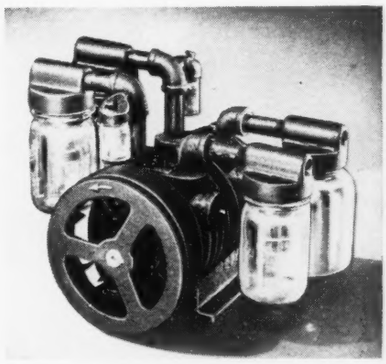
Dry Spray Unit — A dry spray unit having no moving parts and designed for mounting on most types of presses, has been announced by Easy-Flo Spray Co. The picture above shows the unit mounted on a Kluge automatic platen press. One adjustment screw controls the mixture of powder-and-air. Mounting requires one hole to be bored and tapped for a 5/16 in. standard cap screw to hold the actuating valve.

Air Conditioning Booklet

CARRIER Corporation has published a 32 page booklet of an address by Cloud Wampler, President of Carrier, on the history of air conditioning. Mr. Wampler's talk deals with the life and work and contributions of Dr. Willis H. Carter, referred to as the Father of Air Conditioning. He traces the development of air conditioning from the early 1900's up to the present time. Included also in the 6 in. by 9 in. booklet is a brief history and report of the Carrier Corporation.

Air Pumps for Feeding

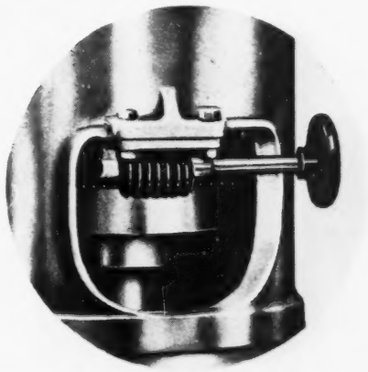
DESIGNED to meet requirements for automatically feeding paper, cardboard, light metal or plastic materials on printing presses, folding and packaging machines are three different models of a rotary-vane air pump, announced by Gast Mfg. Co. The dual



Rotary-vane air pumps available in three models for automatic feeding of materials on printing presses, folding and packaging machines.

chamber models deliver air pressure on one side and vacuum on the other. All three models are equipped with ball bearings and V belt pulley with integral fan for cooling and drive.

The small dual pump model delivers 9 c.f.m. from each chamber at 1200 r.p.m. Either or both chambers produces vacuum to 20 in. or pressure to 20 p.s.i. The large dual pump delivers 14 c.f.m. from pressure chamber and 9 c.f.m. from vacuum chamber. Up to 15 p.s.i. pressure and 15 in. vacuum is developed. By connecting pressure (exhaust) port of vacuum chamber to pressure line, increased air blast is obtained, claims the sponsor. The Model 3040 single chamber pump produces moderate pressure or vacuum with volume of 19 to 24 c.f.m., depending on r.p.m.



Adjustment Wheel on Grinding Mill —An external adjustment wheel has been added to the Morehouse B1400 Grinding Mill manufactured by Morehouse Industries. Sponsor states the wheel makes it more convenient to adjust fineness of grind. It is claimed that adjustment tolerances as small as 0.0005 in. can be maintained. Models of the mill range in size from a capacity of 8 gal. per hour to over 500 gal. per hour.

Printing Equipment Engineer is an

EXHIBITOR
GRAPHIC ARTS EXPOSITION
CHICAGO · SEPTEMBER 11-23 · 1950

FIRST LIST OF EXHIBITORS

National Graphic Arts Exposition

First announcement of exhibitors taking space for the 1950 Sixth National Graphic Arts Exposition have been made by A. E. Giegengack, President and General Manager. The Exposition will be held at the International Amphitheatre, Chicago, September 11 to 23, 1950.

Two hundred of the 338 booths available have been allocated to 106 concerns. On October 12, there were 138 booth spaces remaining; no doubt by this time, a considerable number have been sold.

The Exposition area totals 3 A., or 81,629 sq. ft. net on one floor, with the remaining area devoted to wide aisles to permit free movement of people attending the Exposition. Names of exhibiting companies which have been released by the Exposition management are as follows:

Acme Steel Co.
Aigner, G. J., Co.
American Evatype Corp.
American Roller Co.
American Type Founders Sales Corp.
Artype, Inc.

Battelle Memorial Institute
Baum, Russell Ernest
Bingham's, Sam'l, Son Mfg. Co.
Bookbinding and Book Production
Book Manufacturers' Institute
Bourges, Inc.
Brandtjen & Kluge, Inc.
Bunn, B. H., Co.

Challenge Machinery Co., The
Chandler & Price Co., The
Chemco Photoproducts Co., Inc.
Chicago Steel & Wire Co.
Commercial Controls Corp.
Consolidated Photo-Engravers & Lithographers Equipment Co.
Cottrell, C. B., & Sons Co.
Craftint Mfg. Co., The
Craftsman Line-Up Table Corp.
Cutler-Hammer, Inc.

Dayton Rubber Co., The
Dexter Folder Co.
Doyle, J. E., Co., The

Electric Boat Co. Printing Machinery Div.
Electrographic Corp.

Force, William A., & Co., Inc.

Gane Brothers & Lane, Inc.
Gegenheimer, William
General Binding Corp.
Graeber Stringing & Wiring Machine Co.
Graphic Arts Assoc. of Illinois, Inc.
Graphic Arts Pub. Co.

Hamilton Mfg. Co., The
Hamilton Tool Co., The
Hammermill Paper Co.
Hammond Machinery Builders
Harris-Seybold Co.
Heinrich, H. H., Inc.

Ideal Roller Co.
Imperial Type Metal Co.
Inland Printer, The
International Assoc. of Printing House Craftsmen, Inc.
International Typographic Composition Assoc.
Intertype Corp.

J C M Machine

Kemp, William M., Co.
Kimble Electric

Lanston Monotype Machine Co.
Lawson, E. P., Co., Inc.
Lester & Wasley Co., Inc.
Lockwood's, Inc.
Linotype Parts Co., Inc.
Ludlow Typograph Co.

Macbeth Arc Lamp Co.
Mergenthaler Linotype Co.
Miehle Printing Press & Mfg. Co.
Miller-Lauffer Printing Equipment Co.
Miller Printing Machinery Co
Mohr Lino-Saw Co.
Morrison Co., The

National Assoc. Printing Ink Makers, Inc.
National Graphic Arts Education Assoc.
National Lead Co. (Blatchford)
New Era Mfg. Co.
Nygren-Dahly Co.

Oxy-Dry Sprayer Corp.

Paasche Airbrush Co.
Plastic Binding Corp.
Plaza Machinery Co., Inc.
Potdevin Machine Co.
Printing Equipment Engineer
Printing Industry of America, Inc.
Printing Machinery Co., The
Production Yearbook
Process Color Plate Co., Inc.

Rathbun & Bird Co., The
Regency Thermographers
Richards, J. A., Co.
Roberts & Porter, Inc.
Robertson, R. R., Co.
Rosback, F. P., Co.
Rouse, H. B., & Co.

Seal-O-Matic Machine Mfg. Co.
Sheridan, T. W. & C. B., Co.
Smythe Mfg. Co., The
Stereotex Machinery Co.
Super Speed Printing Press

Taft Contracting Co.
Taylor Machine Co.
Technical Trade School
Tenak Products Co.
Thomson-National Press Co., Inc.
Tompkins Printing Equipment Co.
Turner Printing Machinery, Inc.

United American Metals Corp.

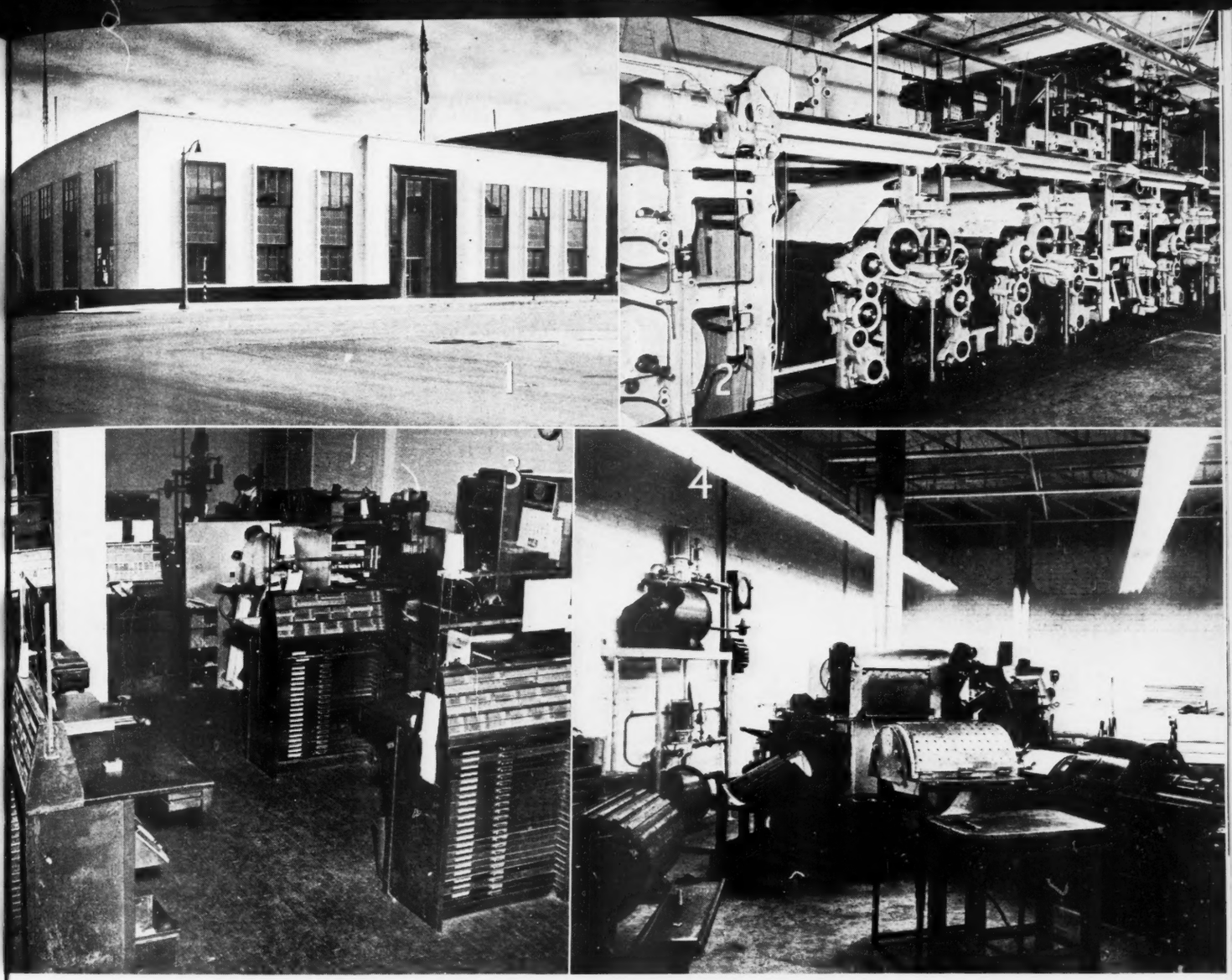
Vandercook & Sons, Inc.
Verner, B., & Co.
Virkotype Corp.

Walden Sons & Mott, Inc.
Walton Laboratories, Inc.
Weber, Martin J., Studio
Western Newspaper Union

As of October 12, the following 10 Graphic Arts associations have scheduled their 1950 meetings concurrent with the Exposition:

Intl. Assoc. of Printing House Craftsmen, Inc.
Printing Industry of America, Inc.
Intl. Typographic Composition Assoc., Inc.
Book Manufacturers' Institute
Lithographers' National Assoc.
National Graphic Arts Education Assoc.
Label Manufacturers' National Assoc.
Graphic Arts Trade Association Executives
Intl. Printing Supply Salesmen's Guild
National Printing Equipment Assoc.

Firms interested in exhibit space at the Sixth Educational Graphic Arts Exposition, International Amphitheatre, Chicago, September 11 to 23, 1950, may obtain full information from A. E. Giegengack, General Manager, National Graphic Arts Expositions, Inc., 105 West Monroe St., Chicago 3, Ill.



View of Building for San Bernardino (Calif.) ***Sun*** **and** ***Evening Telegram*** **and Several Mechanical Department Views**

1.—The new home of The Sun Co. is at 4th and D Sts. This view shows the main entrance on D St. To the left-rear facing 4th St. in the one-story section are the mechanical departments. The building is fireproof and earthquake resistant. Over the top of the building is visible the radio towers for KBMT, a Sun Co. FM broadcasting station. Station is housed in its own building farther down the block.

2.—The Goss 64 page press. The old press which it replaced had a 32 page capacity. Press prints 30 thousand 32 page p. p. hr.

3.—Part of the ad alley. In foreground, ad frames and saw-trimmers. In top center, behind saw screen, are two Ludlows used in setting ad guts and headlines.

4.—In foreground is a stereotype curved scorcher, just back of it the metal pot and on the wall the control and feed mechanism for immersion metal melting equipment. To the right is the Wood Heavy-duty Junior Autoplate.

California Newspaper Plant Equipment Layout and Workflow

By JAMES I. JONES

THIS is not a Chamber of Commerce story out of California—it's the story of a newspaper plant dream come true. For many years, The Sun Co. of San Bernardino, Calif., planned and dreamed of its new home, but not until January of this year did that dream reach its fulfillment.

Since this story will deal chiefly with the mechanical set-up, which, after all, is the chief concern in production, a few facts for background information will be given first.

The building itself is of simple, contemporary architectural design, containing 35 thousand sq. ft. of floor area. The structure is of concrete, the walls being poured into plywood forms to furnish a smooth surface for finishing. The finished exterior was painted with mica paint, the base of the building featuring a dark green ceramic veneer.

Costing approximately $300 thousand, the building is designed to resist California earthquake disturbances. Floor space is divided as follows: 16.5 thousand sq. ft. in the administrative section, 18.5 thousand sq. ft. in the mechanical section.

The Sun Co. publishes in both the afternoon and morning fields. The morning paper, the San Bernardino *Daily Sun*, known far and wide as *The Sun*, goes through six editions each morning. The afternoon paper, the *Evening Telegram*, goes through two editions six afternoons a week.

James A. Guthrie, President and Publisher of the San Bernardino (Calif.) *Sun* and *Evening Telegram*.

Up until a few years ago, the *Evening Telegram* reached its subscribers as a six-day-a-week paper. In order that *Telegram* subscribers might enjoy a Sunday edition, the management decided to embark upon a Sunday edition that would reach all subscribers of both papers, and out of that decision came the present combined Sunday edition of the *Sun-Telegram*, so in effect The Sun Co. finds itself in a three-dimensional publishing field. Incidentally, this has proved to be a highly successful venture.

Other divisions of The Sun Co. are: The Acme Colorprint Co., which prints Sunday comic supplements for 130 newspapers; Inland Engraving Co., which not only does all the engraving work for The Sun Co., but covers a wide field; KBMT, an exclusively FM broadcasting station; and The Sun Printing and Publishing House, which, as its name implies, deals in all kinds of commercial printing. Only the newspapers are housed in the new building, each other division having its distinct and separate autonomy.

Moving Blueprinted

A background picture of the moving procedure from the old building to the new building two blocks away, may be helpful in understanding the uninterrupted publication schedule. It is pertinent to emphasize here that not one penny was spent in planning and constructing special equipment to aid in the moving. The mechanical departments were moved by a crew of men from Halbert Brothers of Los Angeles, a firm specializing in such work.

By looking at the accompanying floor plan diagram, the reader will see that each piece of equipment is numbered. Those numbers tell an interesting story. Each piece was labeled with its respective number before moving, and its position in the new building was given the identical label number.

Saturday, January 15 was chosen as moving day. The ad crew came on duty at 7 a.m., and pulled off at 3:30 p.m. with the week-end ads tucked away. At that time, equipment from the ad alley was started on the journey to its new home. As each piece reached its destination, the labeled number designated its spot placement. The four Intertypes used in setting ad guts followed in order, and as the Sunday morning *Sun-Telegram* went to press for the last time on the old 32-page press, piece after piece of equipment was hustled away and set up. Monday morning's edition, January 17, rolled off the new 64-page press in the new building on schedule. Time allotment for moving of each Intertype was 30 min. from spot placement to spot placement, from production to production, and this schedule was maintained. The following Sunday, January 23, a 92-page dedication edition was published.

When Printing Equipment Engineer invited Mechanical Supt. R. O. Nicolay to furnish a story about the new plant of the San Bernardino (Calif.) *Sun* and *Evening Telegram*, he turned the job over to James I. Jones. Mr. Jones seems to be one of those versatile men who function so well in many printing plants. He is a printer, proofreader, and official guide for The Sun Co. Read his chatty discussion about moving the equipment and how the work flows in the shape of a Cap U. An interesting note is that one Intertype is equipped with Teletypesetter Unit for setting the Society Section type.

The mechanical department in the new building is housed in a ground-floor, one-story section on the Fourth St. side, the northeast corner of the building. This part of the building is of factory-type construction, with a 14 ft. clearance between floor and trusses. This building section houses the composing room, stereotype room, pressroom, newsprint storage room, and mailing and distributing room.

Composing Room

The composing room, measuring 52 ft. by 110 ft. is featured by employee lunchroom, restrooms, shower stalls and locker room. Now, by referring to the accompanying mechanical department diagram, it will be a simple matter to visualize the production procedure. Those numbers mentioned previously will spot each piece of equipment. Let us stand at a vantage point with our back to the Fourth St. wall, and look South, taking in the entire composing room arrangement.

To our right is the door which gives access from the Fourth St. entrance, the editorial office and other upstairs offices, and the advertising department directly across the hallway. All ad copy comes through this door. The dispatch department is an integral part of the advertising department since its salesmen contact and its advertising matrices and customer services are there, so it is located in the advertising department.

At *14* is indicated our one Teletypesetter perforator. More about this later. Directly in front of us at *1* is the mechanical superintendent's desk. Next to his at *2* is the ad foreman's desk. Here all ad copy is received, catalogued and marked up.

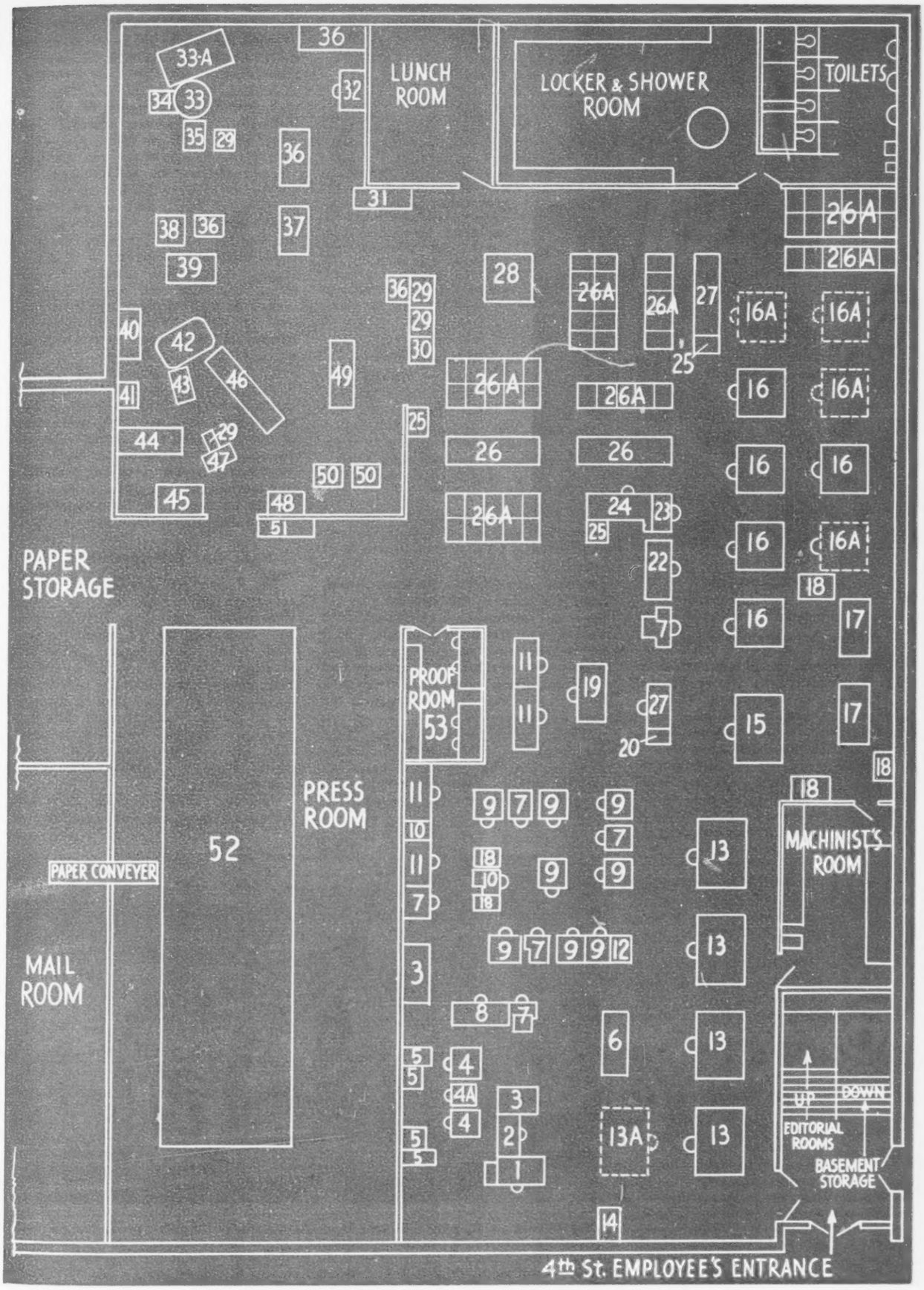
On the right of the room extending to the back is a battery of nine Intertypes. The first four machines are used for ad-gut composition during the day shift. Each is equipped with auxiliaries, and a good selection of type faces and sizes is available for ads. The ad crew works on staggered day shift from 7 a.m. until 5:30 p.m., and only in rare instances of overload is it necessary for the admen to work at night. Even when this occurs, it is the floormen who absorb the extra hours. This means that these four machines become a regular production unit of news composition during the night shift. All Intertypes are producing units during both the day and night shifts, no production unit being idle at any time. Another Intertype will be added to these as soon as delivery is made.

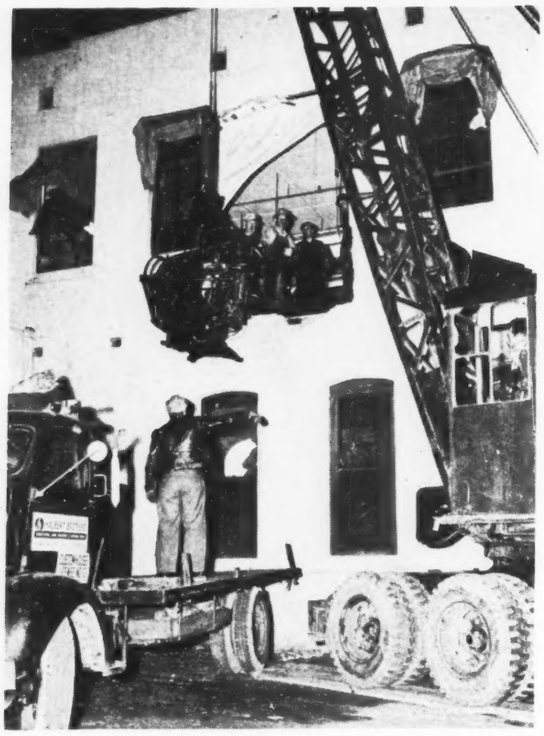
To the left are two Ludlows, one of which is new.

(*Continued on Page 38*)

Key to Equipment Diagram on Opposite Page. Read Description of Workflow by Mr. Jones in Accompanying Article.

1. Mechanical Superintendent's Desk
2. Ad Markup Desk
3. Cut Storage
4. Ludlow Casters
4-A. Ludlow Workbench
5. Ludlow Matrix Cabinets
6. Ad Machine Dump
7. Saws
8. Ad Dispatch and Assembly Bank
9. Ad Makeup Banks
10. Mitering Machines
11. Ad Storage
12. Magazine Rack
13. Ad and News Machines
13-A. Future Ad Machine
14. Teletypesetter perforator
15. Headletter Machine
16. News Machines
16-A. Future News Machine
17. Monotype Material Maker
18. Strip Material Storage Cabinets
19. Page Ad Proof Press
20. Peumatic Copy Tubes
21. News Copy Desk
22. News Dump
23. News Proof Press
24. News Correction Bank
25. News Storage Racks
26. Makeup Tables
26-A. Page Makeup Trucks
27. Page Storage
28. Stereotype Mat Roller
29. Mat Pre-Heaters
30. Mat Humidor
31. Stereotype Base Storage
32. Stereotype Foreman's Desk
33. Big Chief Metal Remelt Cup Pot
33-A. Dead Metal Bin
34. Big Chief Twin-Eight Pig Molds
35. Goss Flat Caster
36. Work Bench
37. Saw
38. Flat Router
39. Roughing Machine
40. Twin Kemp Carburetor for Plate Remelt Pot
41. Vacuum Unit for Pony Caster
42. Plate Remelt Pot
43. Goss Rocker Casting Box
44. Goss Tail Cutter
45. Goss Plate Shaver
46. Heavy-duty Pony Autocaster
47. Chipping Block
48. Plate Router
49. Mat Packing Bench
50. Sta-His Formers
51. Plate Table
52. Four-unit Goss Press
53. Proof Room


LUNCH ROOM
LOCKER & SHOWER ROOM
TOILETS
PAPER STORAGE
PROOF ROOM
PRESS ROOM
PAPER CONVEYER
MAIL ROOM
MACHINIST'S ROOM
EDITORIAL ROOMS
BASEMENT STORAGE
UP
DOWN
4th St. EMPLOYEE'S ENTRANCE



Trussed up without benefit of skid, cage or platform, the Intertypes in the old composing room of the San Bernardino (Calif.— *Sun* and *Evening Telegram* were disconnected, moved two blocks away to new location, and were ready to run again as soon as the metal was reheated—all within 30 min. each.

(*Continued from Page 36*)

Complete Delivery to Floorman

Directly beyond the ad foreman's desk is the ad assembly, or, if you prefer, the ad-gut dispatcher department. The ad-gut dump is directly in front of us, centered behind the keyboards of Nos. 2 and 3 Intertypes. In this department all ad-gut slugs are sawed, all cuts and Ludlow composition assembled, together with signature from metal cabinet file; thus each ad is complete. In short, when a floorman receives an ad from this department, he is ready to go to work on make-up. There is no lost time looking for this and hunting for that. This department also has one other important function, that of filing a multitude of live ads that are readily accessible for designated running dates.

Beyond the assembly department is the ad alley with four saws, two mitering machines, one a new vertical, and one a horizontal brought from the old building. There are 10 ad frames, one being a double-truck frame, another a two-combination that may be used for double-truck work. Each ad frame is equipped with facilities for storing leads and slugs from 4 picas up to 60 picas. Auxiliary storage racks for the top of each frame are to be installed at a later date and do not show in the pictures. There is a double size frame next to the proofroom which is used for flat-cast storage.

The proofroom may be seen at the left-center of the room. It is entirely enclosed, has facilities for four feeders, and storage space for both the *Sun* and *Telegram* news copy for a 30 day period.

Directly in front of the proofroom is the ad correction frame. Just to its right is the page-size ad proof press. All ad proofs are corrected on this frame, taken from this point to the merchant for his approval, brought back to this point for final changes. As an ad is OKd it is filed for its respective running date in the page-size vertical filing frames at the end of the correction frame. Beyond this area and utilizing the rear of the room is the makeup department.

To the right of the ad proof press is the news copy desk. All editorial material arrives by pneumatic tube. Directly beyond it are the news proof press and the news dump bank. In this unit also is a saw.

The Workflow

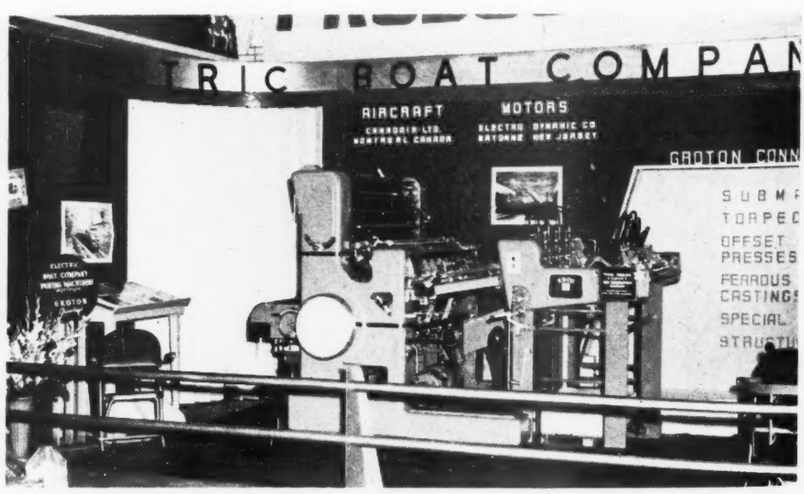
It will be noted that the work flow is down the heart or center of this arrangement, all work arriving ready for make-up with no backward motion. It may be compared to a river flowing down a valley with its tributaries entering from either side, until the full-grown water course disgorges its output into the bay, which in this instance is the makeup department. There is no lost motion, no retracing of steps, and no attempt to force these respective tributaries to back up. Getting water to run up hill is a costly process. This arrangement of mechanical production absolutely minimizes production costs, which, after all, is the goal always to be sought for in production. Already mechanical executives of numerous newspapers far and wide are making a study of this set-up.

To the right of machines Nos. 3, 4 and 5, and on the west side of the room, is the machinist's office and headquarters. The offset of this room extending to the back of the composing room is used for two Monotype casters, which produce over 40 styles of border-rules and both high and low slugs in 2 pt., 4 pt., 6 pt., 12 pt. and 18 pt. Beyond the Monotypes is the desk of the *Telegram* foreman.

One Teletypesetter

No. 9 Intertype is equipped for Teletypesetter production. It does double duty in that it is a regularly operated unit, and does the Teletypesetter tape work when not in regular production schedule. The head machinist and his assistant have improved the operational technique of the tape-operated machine by an ingenious invention of their own which minimizes all assembler jamming. The Teletypesetter Corporation representative has shown great interest in this contrivance.

Oldtimers of the printing trade who have read about the Teletypesetter, but



EBCO Press on Display—Electric Boat Co. was one of the participants in the Eastern States Exposition held recently at Springfield, Mass. One of the highlights of the Exposition was the printing of a daily paper on the EBCO offset press on display at the company's booth. Printing Machinery Div. personnel present at the company's display included Harold A. Gegenheimer, Divisional Manager; M. E. Brewer, Sales Manager; Peter Rice, Sales Representative; Owen Adams, Sales Promotion Manager; John R. Lee, Factory Service Supervisor; Al Sullivan, Service Representative; and Hale Baldwin, Service Representative.

who are obviously unable to understand how it works, are amazed and pleased to see it in operation. Then they pose the question, as do many others, "Is it practical?" The answer to that, of course, has to come from the company for which it is producing. With The Sun Co., it has a definite place in the production schedule. The *Sun-Telegram*, the Sunday edition mentioned earlier, will give the picture of how the Teletypesetter works here. This edition has a Society Section which is a departmental production that is a complete unit in itself. Copy for it starts coming in the first of each week. Obviously this copy isn't timely as of today's production, so throughout the week the Teletypesetter operator works on this. Between shifts and in production lags, the tape is taken to No. 9 Intertype, and by the time deadline rolls around for the Society Section, the type is ready for makeup.

At the left rear of the composing room is the Goss stereotype roller molding machine. To its left are the first of the matrix scorchers. Two rows of double doors enter from this point into the stereotype room which is 50 ft. by 30 ft., provided with two skylights for natural lighting which add to the efficiency of the installed lighting.

The pressroom, housing a Goss 4-unit, 64 page press, is 76 ft. by 30 ft. floor area. It is located directly off the stereotype room, and from our vantage point in the composing room we have seen the work flow progress down the center, turn left to the stereotype room, and now left again to the pressroom. This means that to our left, through the wall, is the pressroom which parallels the composing room. The entire mechanical production of the newspaper has described a letter U, one without serifs and one with a square base. Beyond the pressroom to the left are the newsprint storage room, 73 ft. by 33 ft. with a storage capacity of 130 T., and the mailing and distributing room which is 36 ft. by 52 ft.

Lighting and Floors

All lighting in the mechanical department is by industrial type Sunbeam fluorescent. The departments are heated by both gas and hot water units and air-conditioned by evaporative coolers. The floor in the composing room, with the exception of the makeup department which is hardwood, is made of pine blocks turned on end, anchored on a "floating bed" and sprayed with asphalt. This tends to minimize leg stress of workmen. Other mechanical department floors are concrete.

New equipment for the composing room may be summarized as follows: One Intertype (still waiting for delivery); one Ludlow; one H. B. Rouse & Co. vertical mitering machine; two Nolan Corporation saws; one Hammond Trim-Osaw; one Monotype; three ad frames; 32 new chases and page trucks; one Teletypesetter; an assortment of storage cabinets for ads from one column to double-truck size.

The stereotype room is equipped with a new Kemp Immersion, gas-fired, 4 T. capacity metal pot, equipped with Ludwick electric metal pumps; an integral part of this is a Wood Heavy-duty Pony Autocaster. Also, there is a Big Chief metal remelting pot with twin-eight, water-cooled pig molds and Ludwick electric metal pump for flat casting.

The entire pressroom equipment is new.

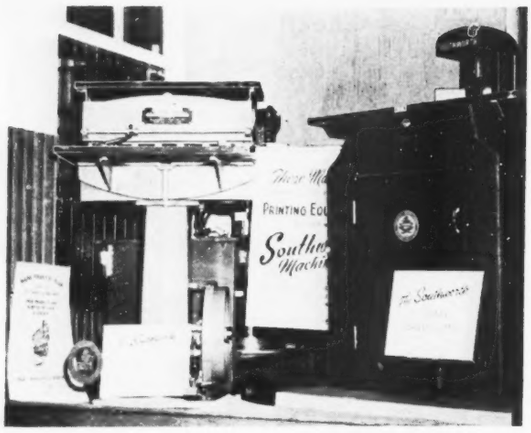
James A. Guthrie is Editor and President of The Sun Co.; Ralph W. Davis is Production Manager and Managing Editor; R. O. Nicolay is Mechanical Superintendent; Coleman Wright is Head Machinist; William A. Leffen is Pressroom Foreman; Leo D. Roach is *Telegram* Foreman; Dale Overton is the *Sun* Foreman; Gus Johnson is Stereotype Foreman; Gilman Tenney is Ad Foreman, and L. L. McFall is Building Superintendent.

Milwaukee-Racine Craftsmen—New officers of the Racine-Milwaukee (Wis.) Club of Printing House Craftsmen appear from left to right, Second Vice President Gilbert LaVesser, Bookcraft, Inc.; First Vice President Earl S. Ellis, Western States Envelope Co.; President Gilbert Hoffman, Western Printing and Litho Co.; Installing Officer, Charles S. Lee, Trade Press Typographers; Recording Secretary Alvin J. Veit, W. A. Krueger Co.; and Treasurer David F. Olson, Dorsey, Inc. Publicity Chairman for the Milwaukee-Racine Club is Percy Champion, Immediate Past President.

According to an announcement by Joseph F. Costello, President of the Lanston Monotype Machine Co., Richard Beresford has been appointed Special Representative for the company in the New York area. Mr. Beresford's place as New York District Manager has been assumed by William J. Howe. Mr. Costello has also announced the addition to the New York District Sales and Service staff of Robert Huberty.

Announcement has been made by Frank W. Shober, Manager of American Type Founders' New York branch, of the addition of Gordon R. Thomson to the sales staff.

Offset Proof Press Installed—While attending the convention of the American Photo-Engravers Association recently, five members of Vandercook & Sons, Inc., took advantage of the opportunity to witness the initial performance of the company's first offset proof press to be installed on the west coast at the Color-Tone plant of San Francisco. Shown above, from right to left, are E. O. Vandercook, President, Ted Schwartz, Service Representative, D. D. Vandercook, Vice President and Secretary, S. B. Dale, Western Manager, and Ray Bogdan, National Service Manager, of the Vandercook organization; James A. McVey and Karl E. Hoffman of Color-Tone; and O. F. Duensing of Vandercook Research, Inc. The Vandercook offset press has a max. plate capacity of 25½ in. by 36 in. and is claimed to produce proofs which closely approximate the final printed results on production presses. A complete description of the press appeared in the July 1949 issue of *Printing Equipment Engineer*.



Main Products Week — Products of Maine manufacturers were displayed recently for a week in the windows of retail merchants throughout the state. The state's only manufacturer of Graphic Arts machinery, the Southworth Machine Co. of Portland, attracted considerable attention with their display of the Super Portland Power Punch (at the left in the picture) and the Southworth Power Corner Cutter in the window of one of Portland's leading merchants.

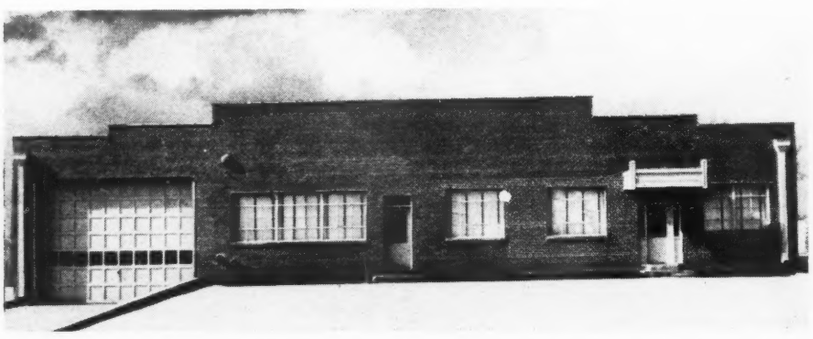
EXECUTIVE Cs

Edward Leon Matlock, composing room superintendent of the Indianapolis (Ind.) *Star* for some time, has been appointed mechanical superintendent of the Horvitz Newspapers, including the Mansfield (O.) *News-Journal* and the Lorain (O.) *Journal*. He assumed his new duties on Monday, September 26.

The Mergenthaler Linotype Co. has announced the appointment of Jackson Burke, former assistant manager of the Stanford University Press, as its new Director of Typographic Development. He succeeds C. H. Griffith who is retiring after 43 years of service with Linotype, the last 13 as Vice President in Charge of Typographic Development. Mr. Burke's work has appeared in shows of the Rounce and Coffin Western Books, Books by Offset, and Text Books selected by the American Institute of Graphic Arts. A veteran of World War II, he attended the University of California and the Journalism School at the University of Oregon. In his previous position at the Stanford University Press, Mr. Burke was in charge of design and production. In 1940, he assembled and lectured upon a collection of printed books, including the Gutenberg Bible, at the San Francisco Exhibition. He is a member of the Roxburghe Club, the Press Club of San Francisco and the editorial board of the Book Club of California. Mr. Griffith joined the Linotype organization in 1906 and after traveling as special representative throughout the United States and Canada, he was named assistant to the president in 1915 and placed in charge of type design and manufacture. Under Mr. Griffith's direction, Linotype introduced the original American type designs of W. A. Dwiggins and Rudolph Ruzicka. He also supervised the cutting of many classic book faces and the Linotype Legibility Group of periodical faces.

Jackson Burke, appointed Director of Typographic Development for Mergenthaler Linotype Co.

© Bachrach



IPI Atlanta Branch—Shown above is the new home of International Printing Ink's Atlanta (Ga.) branch. Emphasis in design of the new building has been made on good lighting. The color-matching rooms have access to natural North light, while fluorescent and incandescent lighting serves all other areas. Address of the Atlanta office and service station is 730 Bluff St., Southwest.

Harry A. Porter, Vice President in Charge of Sales for Harris-Seybold Co., has been named President of the Direct Mail Advertising Association for the coming year. Previously a vice president of the D.M.A.A., Porter was elevated to the presidency at the group's 32nd annual conference in Chicago recently. He has also served as an association director and as general chairman of the conference committee.

Herman R. Freund has been elected a Vice President of Intertype Corporation according to a recent announcement by Neal Dow Becker, President. Formerly chief engineer at Intertype, Mr. Freund

Herman R. Freund, recently elected a Vice President of the Intertype Corporation.

is a graduate of the Polytechnic Institute of Brooklyn, N. Y. He has been in charge of Intertype's program of research and has been responsible for the development of the Fotosetter photo-composing machine. He will continue in charge of engineering as well as of research and development.

Announcement of the appointment of Howard N. Keefe as General Manager of the Arrow Press—Letterpress Div. of the Cincinnati Lithographing Co., Inc. was made recently by Harry E. Brinkman, President. Formerly production manager of the Cincinnati Typesetting Co., Mr. Keefe has also been manager of printing production in plants in Rochester, N. Y. and Washington, D. C. In addition he was production manager of Kircher, Helton and Collett Advertising Agency, Dayton, Ohio. A graduate of Carnegie Institute of Technology, he holds a Bachelor of Science degree. Mr.

Howard N. Keefe, named General Manager, Arrow Press., Letterpress Div., Cincinnati Lithographing Co., Inc.

Keefe is a member of The Advertisers' Club of Cincinnati and The Craftsman's Club.

George R. Steele has joined the sales department of Wood Newspaper Machinery Corp. according to a recent announcement. Mr. Steele covered the midwestern territory for Mergenthaler Linotype Co. for six years and in 1926

George R. Steele who has joined the sales staff of Wood Newspaper Machinery Corp.

joined the Duplex Printing Press Co. He was promoted to the position of District Sales Manager with Duplex two years later and appointed General Sales Manager in 1944. He became sales consultant in 1947 when Goss took over the Duplex organization. Shortly thereafter, Mr. Steele entered a partnership engaged in the newspaper press brokerage, which terminated with his appointment to the staff of Wood.

Announcement was made recently that Roger S. Warner, formerly Director of Engineering for the Atomic Energy Commission, has joined the staff of Arthur D. Little, Inc., research and engineering organization. While with the AEC, Mr. Warner was in charge of initiating the Commission's post-war construction program, developing improved chemical processes, and disposing of radio-active wastes. From 1944 to 1947, he was director of the Los Alamos Laboratory's Ordnance Div., which handled engineering design, assembly and testing of the early atomic bombs. Mr.

Roger S. Warner, formerly with Atomic Energy Commission, has joined Arthur D. Little, Inc.

Warner is a graduate of Harvard University and has studied at Massachusetts Institute of Technology and Cambridge University in England.

Announcement has been made of the addition of Walter E. Thomas to the sales staff of the firm of George R. Keller. Mr. Thomas has 15 years experience as a pressman and has spent the last few years as a salesman in the supply field. At present, he is a member of the Board of Governors of the Washington (D.C.) Club of Printing House Craftsmen. His territory with the Keller organization will include Virginia, North Carolina and part of Washington, D. C.

Charles H. Ruth, familiarly known as Captain (although he carried the rank of major in the Reserve Corps,) passed away at his home, Washington, D. C., on Thursday, October 20. He was 59 and was general superintendent of the Evening Star Newspaper Co. since 1919. He had been ill for a year. To readers of *Printing Equipment Engineer*, he was best known as having been a member of the ANPA Mechanical Committee for many years. He was active in establishing the ANPA Research Committee. Ill health forced his resignation late in 1948. Cap-

Captain Charles H. Ruth, General Superintendent of the Washington (D.C.) *Evening Star* and the Evening Star Newspaper Co., passed away at his home, Washington, D.C., on Thursday, October 20. He was best known to our readers not only as a newspaper plant executive but as a member of the ANPA Mechanical Committee for many years.

tain Ruth was a man of many interests. As the *Star's* superintendent, he had charge of production, purchasing, personnel, newsprint, building management and construction, including labor negotiations. He supervised various construction projects for the *Star*, including the *Star* annex and WMAL radio and television stations. He was interested in highway safety. He served for one period as chairman of the Taxicab, Bus and Delivery Section of the National Safety Council, as a director of the council, and for several years as a member of the Washington Board of Trade's Traffic Committee. For several years he was a director of the National Council of Private Motor Truck Owners Association, Inc. He was a veteran of World War I. During World War II, Captain Ruth served on the Labor-Management Committee of ODT and on the Trucking Commission of WLB. He assisted in organizing and served for several years as secretary of the Building Owners and Managers Association of Washington. He was a director of the Washington Lions Club and a former president of the Wesley Heights Community club. From 1909 to 1911, he engaged in engineering work in Oklahoma City, and from 1911 to 1912 he was employed in the Forest Service's Div. of Geography in Missoula, Mont. He was born in Wilmington, Del., and would have been 60 years of age on October 26. Captain Ruth is survived by his widow, Mrs. Marie S. Ruth whom he married in 1909; a son Charles H. Ruth jr., assistant mechanical superintendent of the *Star*, and two grandsons, Carlos H. and Juan Tomas Ruth; a sister, Mrs. Charles I. Van Arsdalen of Carbondale, Ill., also survives. A requiem mass was said at Fort Myer Chapel, Va., on Friday, October 21. Burial took place in Arlington Cemetery.

Inviting the Undertaker

Perhaps the answer to decreasing the highway accident rate of companies throughout the country can be found in a 24 page pamphlet, *Inviting the Undertaker* by C. D. Batchelor, published by National Foremen's Institute. Contents of the pamphlet are 21 cartoons reprinted from the editorial pages of the New York *Daily News*. Concerns should find the material especially helpful, states NFI, in keeping their salesmen and heavy machinery drivers on the side of common sense while driving. The 4½ in. by 6¾ in. pamphlet is priced at 15 cents per single copy or 10 cents per copy when ordered in quantity. May be ordered from National Foremen's Institute, New London, Conn.

Personnel Problems to be Discussed

A HIGHLIGHT of the 1949 Great Lakes Mechanical Conference was the discussion on personnel relations in mechanical department supervision. This session will again feature the fifth annual program when the Conference convenes at Hotel Schroeder in Milwaukee, Wis., on January 15, 16 and 17, 1950. Newspaper mechanical and production executives of Indiana, Michigan, Ohio and Wisconsin will be in attendance. Executives from other states are invited to join with them in discussing human relations problems. Secretary of the Conference is Al P. Oberg care of Flint (Mich.) *Journal*.

TACT IN DEALING WITH EMPLOYEES

Abstracted from address delivered before convention of National Association of Photo-Lithographers, Hotel Statler, New York, N. Y., October 1949, by Frank A. Myers, Treasurer, Copifyer Lithograph Corp., Cleveland.

OIL on machinery cuts down friction. Tact works that way in dealing with people they like you for it. Your employees may respect you for your knowledge and ability. But they will turn out more production for you if they like you. Tact is what you say and do to make your employees feel that they play an important part on the team.

Before you can be tactful you have to understand how people react to what you say and do. The skillful politician calls this "knowing the ropes". The psychologists call it "understanding human behavior". They tell us that of the five basic things that people want, first on the list is the desire "to feel more important, more worthy, more worth-while—to be appreciated". Second on the list is the desire "to live safely, securely and comfortably (self preservation)".

An employee does things for you because of HIS wants—not because of your will, or the wishes of someone else. That's important to remember, once you know what he wants. As a supervisor, if you can tactfully refer to something HE wants and show him how he can get that by doing what YOU want to do—then you have a much better chance of getting desired action. Everytime you ask people to do things there is a reaction "How does it affect ME—what do I get out of it?"

All-Day Technical Meeting Feature of NAPL Convention

By ADAM HENRI REISER

THE 1949 convention of the National Association of Photo-Lithographers was held at the Statler Hotel, New York, on October 19, 20, 21 and 22. Approx. 1250 persons were registered. The equipment and supplies exhibits were extensive—51 exhibitors taking all available space.

Executive Vice President Walter E. Soderstrom and Executive Secretary William J. Stevens, together with President Charles E. Mallett and their assistants, kept the sessions going on an even keel.

Printing Equipment Engineer is reporting principally upon the technical side of the convention, even though the business, labor and cost accounting sections of the program were of prime interest to members attending.

One of the finest addresses ever to have been delivered before the NAPL was that entitled *What Constitutes Good Shop Supervision?* by Frank A. Myers, General Manager, Copifyer Lithograph Corp., Cleveland. This address should give other management executives, as well as all production and mechanical executives in any plant (no matter what printing process is used) some valuable pointers about plant administration and the securing of employee cooperation. (See extracts in this issue of *Printing Equipment Engineer.*)

Good shop supervision supplies machines, chemical processes, paper, ink, and applies people to turn them into lithographically printed matter that can be sold at a profit, said Mr. Myers. The shop supervisor's job can be divided into two parts: (1) Deals with plant layout, machines, processes, and materials, and, (2) Deals with people. Myers considered the second most important.

Stressing the advisability of consulting with every worker on plant layout, Myers also listed the checking of new machines, proper scheduling, employing preventive maintenance and exposure to information on new and improved processes in addition to the proper choice and purchase of materials.

However, the main stock in trade of the good supervisor is his ability to make human relations work up, down and sideways. Myers lists six important qualities essential to getting a good job done on human relations. They are: (1) Fairness; (2) Enthusiasm; (3) Thoroughness; (4) Teaching ability; (5) Ability to develop team work; (6) Tact. Good supervision pays dividends finds Myers, and a good supervisor cannot get work done except through people.

Justification for Third Shift

The pros and cons of adding more shifts received consideration in the paper submitted by Joseph F. Matlack of Edward Stern & Co.

Recovery of the investment and purchase of new and up-to-date equipment every five or six years, instead of every ten or twelve is one advantage gained by adding a second shift. Matlack contends that the new equipment would put any concern in a better position to meet competition. More than one shift will spread the rent costs, general factory overhead, sales and administration over more hours per day, a fact which should reduce selling costs.

There are, however, difficulties incurred in increasing the number of shifts. Personnel that is efficient, and supervisory help for these extra shifts will be hard to obtain. Further, the preparatory work must be performed by the best personnel obtainable in order to get maximum production with attendant high quality.

Personal experience indicates a full first shift and an 80 per cent second shift, with very flexible crews in the second shift able to operate any of the presses in the plant, contends Matlack.

Better Copy

Pleading that the industry teach the customer how to prepare his artwork and copy, William J. Stevens, Executive Secretary, National Association of Photo-Lithographers delivered a talk on *Better Lithography Requires Better Copy.* One of the pitfalls besetting the industry centers about the poor photographic print. Citing the need for contrast and detail, Stevens declared any effort put into retouching the original would be productive of results and well worth while. Reproduction proofs from outside sources may be another source of disturbance. Halos around the type in the proofs comes up in the negative, and that, with the thin ink in the proof weakens the structure of the lettering.

Color sketches and the matching of colors, provides another headache to the industry. Starting a color morgue of lithographed color samples is a suggestion that should pay off. Not only should the lithographer educate his client to better copy, but he might also try the same on his salesmen, asserts Stevens.

Does Web Press Fit?

Listing some of the products now run on web-fed single and multi-color offset presses, Pat Kirkpatrick of the Rapid

FRANK A. MYERS

Treasurer, Copifyer Lithograph Corp., Cleveland, delivered splendid address on the subject of dealing with the human element in a successful printing plant.

Offset-Lithographers at October convention of the National Association of Photo-Lithographers

1.—Walter E. Soderstrom, Executive Vice President; Charles H. Austin, Ansco Div., General Aniline & Film Corp.; Albert J. Guerzoni, and W. Oliver Tripp, both of W. Oliver Tripp Co.

2.—Paul Appalero, Stan Sowizral and Chris Stueben, all of Craftsman Printing Co., West New York, N. J.; Dave Zucker of the *Hudson Dispatch*, Union City, N. J.

3.—Marshall Straus of Straus Printing, Madison, Conn.; August Ruppel, Roberts & Porter, Inc.; George Thomas, Fine Arts Litho, Kansas City, Mo.

4.—Ed Grodemange, Chicago office, and Mike Annic, Sales Mgr., Fuchs & Lang Div., General Printing Ink; August Ruppel, Roberts & Porter, Inc.; Ed Reed and Bob Loveland (Chicago office), Rutherford Machinery Div., Sun Chemical Corp.

Roller Co. addressed the gathering on *The Web Fed Press—Does It Fit Into My Plant?*

Why is this work formerly produced by letterpress now run on the web-fed offset? The answer is found in the paper used, the speed of the web-fed press and, of course, the price resulting.

Factors that are to be considered in the installation of the press are those of personnel and wages; spoilage on runs; length of the run; and paper storage. However, most important is the answer to the question, "Do we have prospects or customers who will give us a contract for a sizeable volume of the right kind of work to keep this press in production so as to give us a reasonable return on our capital investment."

Costs and Production Standards

Every lithographic plant has two things to sell, reported Ben Harris of the New Era Lithograph Co., in his address on *Hourly Costs and Production Standards from an Estimator's Viewpoint*. They are (1) Production time and (2) Labor and material.

Sale of production time is most important and Harris in his talk described the method of arriving at hourly costs and the use of this tabulation. Of course the real job of the estimator in the plant is that of synthesizing the three viewpoints of (1) The cost accountant; (2) The sales department, and (3) The management, in an effort to get the job for the salesman with a profit for the concern, if the production processes work efficiently.

Harris warned the estimator he cannot afford to play safe by estimating high, for the primary job of the estimator is to get the work for his plant. Very often the difference between profit and loss lies in the estimator's knowledge of his art or lack of it.

Technical Forum

A TECHNICAL forum was held Saturday morning and afternoon to close the Convention. John J. Maguire of Offset Engravers, President of the New York Litho Club, was Chairman. Norman Mack of Roberts & Porter was Moderator, leading his panel of six experts through a barrage of questions that brought favorable comment from the 300 attending both sessions. Tony Capello of Joseph Hoover & Sons; Arthur Fiehn of Meehan & Tooker; Harry Mueller of the Litho Chemical Supply Co.; John Carney of the Brett Litho Co.; Bill Falconer of the Eastman Kodak Co., and Ruby Wohl of Kindred-McLaen Co. comprised the panel.

(*Continued on Page 48*)

Improving Workflow in the Plant

(Summary of address entitled *Workflow in a Medium Size Commercial Plant* delivered by Edward T. Samuel, President of Samuel & Walker Printers, Cleveland, before the Cleveland Club of Printing House Craftsmen, October 1949.)

MANAGEMENT executives in many commercial printing plants are usually confronted with bottlenecks and stumbling blocks in production which they would like to see eliminated or find ways of getting around. In many instances, these bottlenecks and stumbling blocks continue to exist because management will not take the initiative needed to correct a condition which is taking the profit out of sound plant operation.

The owner, president, vice president—the top brass in these plants will be amazed should they take the time to visit the back shop and investigate the conditions which prevail. Some bemoan the fact that the composing room is dead weight and that there is no profit there. This department is maintained, explain many, because of necessity. This kind of ideology is incorrect and the composing room in these plants has reached this state only because the management officials have permitted operation to continue without taking the time to investigate whether it is sound or not.

Investigation into composing room conditions will uncover numerous sore spots which have deepened and widened and have hampered production as time has passed. Type cases are not grouped or in the right place that a craftsman would be accustomed to finding them. Spacing material and type characters in cases are not located conveniently in adjacent places. It is important to keep type cases clean and work banks free of material. Makeup tables have a purpose and it is not for the storage of forms. Galley cabinets should be kept up-to-date when forms are being stored for customers. In conjunction with this, the form file should always correspond with the correct galley so that no time is lost in finding a standing form for a repeat run.

Make a study of things that are wrong in a composing room. Think of ways in which these faults can be remedied and adopt a suggestion plan for employees. In arranging work rooms, don't ever run out of ideas or you will only be a "has been". Standardize wherever possible. Willingness of management and cooperation of employees is needed for standardization. Such a program can be beneficial to a composing room and other departments in a plant.

Motion study forced upon people is not liked, but when these people can be shown how their work can be made easier and how they can produce more by following such a plan, they are usually for it. The effectiveness of time and motion study in a printing plant varies according to each department. Such a study is simple in the bindery, but a little more difficult in the pressroom. However, it can be done by timing the operations on a press and using them as a basis in scheduling work. It is important not to schedule 100 per cent to these figures. Keep it closer to 85 per cent and in the long run, jobs will balance out one another. The composing room is a bad spot in which to maintain an accurate schedule.

In revamping the present facilities of a plant, time will be spent. It is not an operation which can be carried out overnight and you will find that money has to be spent if you want the job done right. It is well to carry out the first steps on paper by use of templates and a cross-ruled sheet having squares measuring ¼ in. each way. Such kits can be obtained from either Hamilton Mfg. Co. or American Type Founders. The templates consist of pieces of cardboard cut to scale and representing in miniature the exact proportionate size of the floor space required by each piece of equipment in the plant.

From the booklet *Composing Room Layout* issued by Hamilton Mfg. Co., points to be considered in any layout are enumerated as follows: (1) Flow of work from front office, through composing room, to pressroom, or to stereotype room or electrotyper; (2) Number of people employed in the composing room, and the responsibilities of each; (3) Suitability of present equipment to the work being handled; and (4) Provision, if possible, for future changes and expansions.

In considering proposed changes in composing room layout, the most important points to bear in mind are listed in the same booklet, as follows: Most convenient location for composing room foreman or other supervisory personnel; proper aisle widths; suitable working areas around equipment; ample lighting; and adequate ventilation. It is important also to watch the width of aisles if skids or trucks are to be moved through them. Wash and/or clean lighting fixtures frequently to provide maximum lighting.

To improve your present facilities, make a layout of the equipment in your plant as it now stands by using the templates and cross-ruled sheets. Call your employees together and show them the present arrangement. Perhaps the idea may be rebuffed or take on a "What's the matter with it the way it is now?" attitude by the men. Human nature often repels a change. To combat this, explain the need for revamping the present facilities and the ways in which it will benefit them. Ask for suggestions and then hang the layout up in the shop for study by the workers for a couple of weeks. This will produce sound thought and good ideas from the men who have to do the work.

Create interest among employees and teamwork within the shop, and production will move at greater speed. Rely on the suggestions and thinking of the workers for they are as important to smooth workflow as the machines are which do the work. Pay more attention to the conditions which prevail in the back shop and investigate them at regular intervals. A smoother flow of production will only be reached after enough time and serious thought has been consumed in studying your present plant conditions.

Acquires Photogravure Collection

Priceless historic etchings, copper plates, first rotogravure prints, color pictures and other relics of Karl Klietsch, inventor of the photogravure process in Vienna 71 years ago, has been moved from that European city to the residence of J. S. Mertle, authority on photomechanics, in Cincinnati, O. The famous collection includes the very first print ever made by photogravure process, so identified in Klietsch's own hand.

The valuable historic relics supplement a collection on photomechanics to which Mr. Mertle has devoted the past 37 years. Lee Augustine, Vice President of The Printing Machinery Co., said Mr. Mertle's collection traces the beginnings of an industry rapidly growing in this country and the world, and will attract international attention.

Plant Maintenance Show

Subjects of interest to the printing, publishing and paper industries are scheduled for discussion at the first Plant Maintenance Show to be held in Cleveland, O., on January 16 to 19, 1950.

Electrotypers to Set Up Own Standards

(Abstracted from address by Edward H. Christensen, Production Manager, Central Typesetting & Electrotyping Co., Chicago, before the 30th convention, International Association of Printing House Craftsmen, San Francisco, Calif., September 1949.)

THE speaker discussed the report recently issued by the AAAA-NAMP, entitled *Recommended Standard Specifications for Advertising Reproduction Material in Magazine Letterpress Wet Printing*. The report contains specifications for the photoengraver in preparing plates for magazine publication. It was the speaker's opinion that in one instance the joint committee did not go quite far enough with respect to plate specifications. He illustrated his statement by saying that the engraver is allowed to route blank metal from outside or inside areas where it interferes with friskets. "But," said he, "nowhere in the report do I see a request that this blank metal (or dead metal) be replaced before a set of photoengravings is sent to the electrotyper. Now, how is the electrotyper going to mold these plates without his dead metal in position? How is he going to finish and curve these plates? He is going to have to replace this dead metal and charge it back to the magazine publishers. It's a ligitimate charge because they have underwritten these specifications and have made them standard practice."

Christensen predicted that the electrotypers are going to get together soon and get out their own specifications. He said the specifications will contain standards for the photoengraver but will set standards that a type form must have before it will be acceptable material from which to make a better plate. Bearer width and height of spacing material will be listed. The type will have to be perfect and every letter, as well as the cuts, will have to be type high, with the cuts mounted on metal.

THE PRESS TO INCREASE YOUR EFFICIENCY

LOWER YOUR COSTS

For Quality Low Cost Printing in Black or Color

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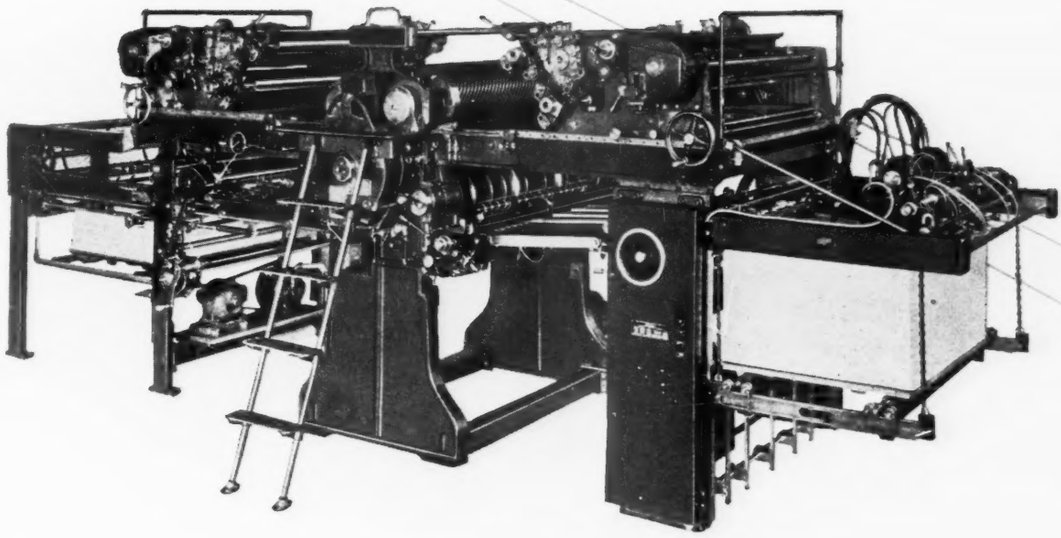

Commercial printers who have installed this versatile, high-speed press can tell you how quickly it repays its cost—and why!

Some of the reasons are:

Its ability to handle a wide variety of work from *one* to many colors.

Its efficiency in terms of cost as compared to one or two-color flat beds.

Its quality of reproductions, with low make-ready time, and ability to maintain quality.

Its features for easy operation.

Its low maintenance cost as compared to reciprocating bed types.

Its flexibility as a part of your equipment, for the longer runs, *in place of*-slower presses.

Finally, the only answer to increasing labor and overhead costs is—SPEED—with quality.

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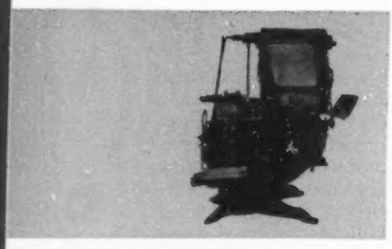


Linotype Research

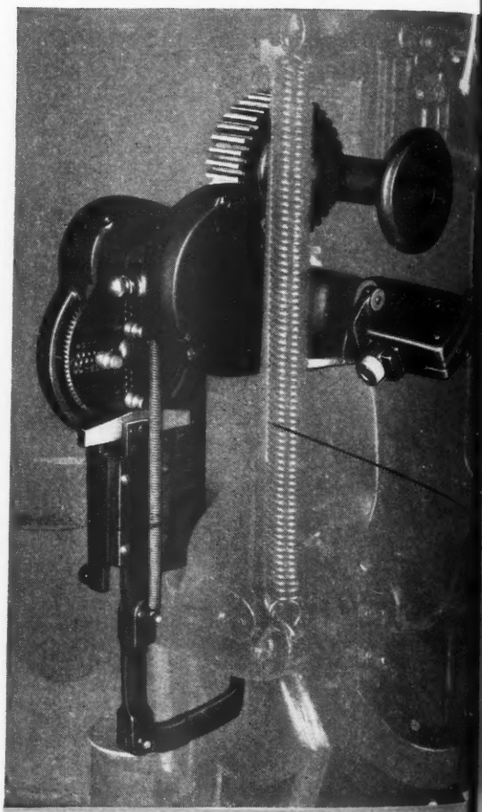
brings improved accessories to help speed production simplify machine operation reduce down-time

And every improvement you see illustrated is available now—ready to go to work to help speed your production.

Greater convenience for the operator is achieved with the new Quick-Opening Knife Block for display work. Lost time is avoided with the new 2-piece nozzle on the Thermo-Blo. Mold disk can be pulled forward without removing flexible tube. A more positive gripping device for the Self-Quadder* helps grip matrices with greater pressure than formerly obtainable. Damage to molds or liners through improperly set ejector blades is prevented with the new Linotype Auto-Ejector Set. Ejector adjusts itself for correct measure when mold disk is rotated.

And there are still more accessories—many of which are available for either new or present machines—all stemming from Linotype Research. It is Linotype Research which enables your Linotype representative to help you plan a more efficient composing room. Phone or write now so that he can be working with you on your long-term modernization plans.

*Available on new Linotypes before shipment.



PREVENT DAMAGE to your molds and liners with the new Auto-Ejector Set. A simple, initial setting of ejector mechanism for each mold in the mold disk provides automatic selection of the correct ejector blade measure when mold disk is rotated. This saves molds, ejector blades and worry. It simplifies operation and speeds production.

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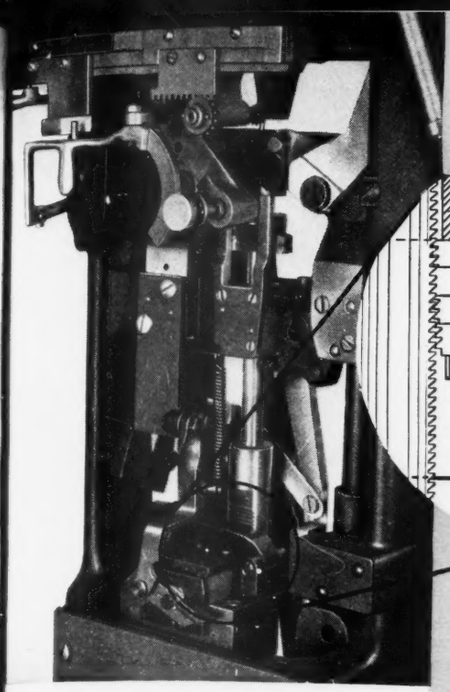
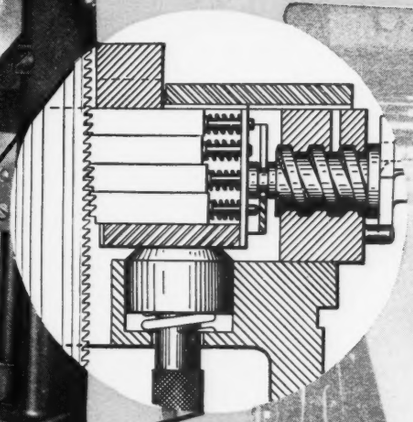
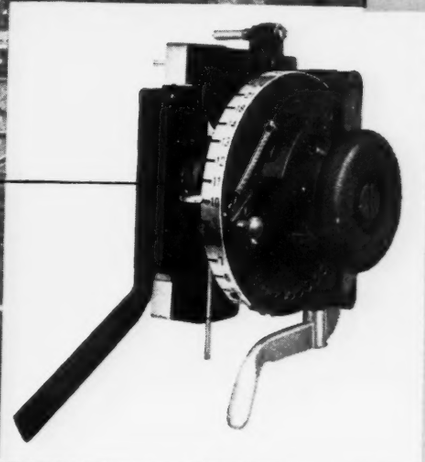




STEADY PRODUCTION is assured with the new gripping mechanism on the Linotype Self-Quadder. New teeth or pawls grip the control rod firmly at any point. When the quadder jaws close, they stay closed with a sure, positive grip. Inset illustration shows detail of the new gripping device.



GREATER OPERATOR CONVENIENCE is attained with new Quick-Opening Knife Block. Food store or overhanging composition is cleared with the touch of a single lever. Slugs are ejected freely without twisting. By returning the operating lever to normal position, the initial setting is restored. The knife block can be opened to clear any overhanging slug regardless of point size.

NO LOST TIME with this new 2-piece nozzle on the Thermo-Blo. When mold disk is pulled out or pushed back in place, upper part of nozzle slides with it. No disconnecting of the Thermo-Blo tube is required—no danger of skinning knuckles. A special washer prevents air leakage. The new Thermo-Blo design saves time—makes for greater safety and operator convenience.

NAPL Convention

(Continued from Page 43)

The writer's impression of the information exchanged at this forum is listed for convenience under department headings, as follows:

Camera

Vinylite sheets, (a plastic 0.010 in. thick, with either a smooth or mechanically grained surface) is being used for negatives or positives. Its advantage lies in the fact that the material comes closest to retaining its size. The Vinylite is coated with a deep-etch coating, first applied with a sponge and then whirled on. This is then dyed with permanganate, iodine or blue thus staining the image. Some use red or yellow in addition using the resultant product as a color proof.

Should color correction be effected on the continuous tone negative or the screened positive? That question is best decided by two factors: (1) The job itself and (2) The personnel of the shop. Correction of the continuous tone negative will enable many size reproductions of the original to be made at minimum cost. This method will introduce a chance of error and added costs. But the element of risk is always present in litho art work since there exists no precision instrument to correctly measure values. The closest to some form of measuring that has been devised is the amateur photographers' scale containing about 16 steps of values from the absolute white to the solid. This scale is of use in balancing the negative. It can also be used in judging the tints being created by the air brush.

With the introduction of Ektachrome, the Graphic Arts now has available a negative color process which may be used for prints or for the negative itself. It is uncertain at the moment what direction its use will take. Kodachrome, on the other hand, provides a positive color picture for the arts. Predominating in Ektachrome, as it is viewed, is an orange tint. This is the color mask built right into the film, a fact that will be useful in color extraction. In Europe, gravure workers are making three color separation work from Ektachrome.

All-Day Lithographic Clinic—On Saturday, October 22, Hotel Statler, New York, the convention proceedings were brought to a close with an All-Day Lithographic Clinic. About 300 offset executives participated. Above is shown the panel personnel which answered questions from the floor. Left to right, they are: Tony Capello, Joseph Hoover & Sons; Arthur Fiehn of Meehan & Tooker; Harry Mueller of Litho Chemical Supply; John Carney of Brett Litho; John F. Maguire, President, New York Litho Club; Moderator Norman Mack of Roberts & Porter, Inc.

Artwork

When over-etched originals are too far gone, in density to be usable, the dots may be intensified, within limits, through the use of mercuric iodide. This intensifier should even be used before etching, a practice providing greater control. Flashing the dot on positives will produce a hard cored dot on the final, providing the artist with a better etching subject. Some artists ask for a flash dot on everything, flattening out the whole picture. However, a flat cut provides them with a very bright result. Flashing a graduated tint will also produce a tint having no hard line at the edge.

Positives to be used for press plates are found best when produced by contact rather than in the camera. Solid black dots made by contact allow for greater leeway in exposures during the press plate production since the grey, brown dots found in camera positives permit burning through when great variations occur in time during exposure.

Platemaking

A sensitivity guide has been provided for the lithographic platemaker. This should enable him to get that clean development so necessary to the production of the good deep-etch plate. Residual moisture is found to be left in developed areas when plant humidity hits 75-80 degrees. To remove this moisture the platemaker has adopted the dodge of heating the back and front of the plate prior to application of the lacquer. Of course, air conditioning of the plant is the answer.

When the solids on deep-etch plates go blind after a run of 3000 to 4000 sheets, the fault may lie with the moisture mentioned before, or, it may lie in the overpacking in the press. Then again, it may be the fountain solution is too acid.

Answers to questions on pre-etching conceded the advisability of that procedure when using casein or synthetic coatings, or, when Monel metal is used. Black spots sometimes encountered in these plates can be eliminated by the use of pre-etch. How this would remove any residue sometimes left in the image is hard to envision, yet it is claimed for it.

The fine grain on the tri-metallic plate may show the sudden edge on a graduated tint whereas the same positive exposed on regular metal with a coarser grain yields no such result. Incidentally, the opinion was offered that the tri-metallic plate is increasing in popularity and is the most stable plate in the industry.

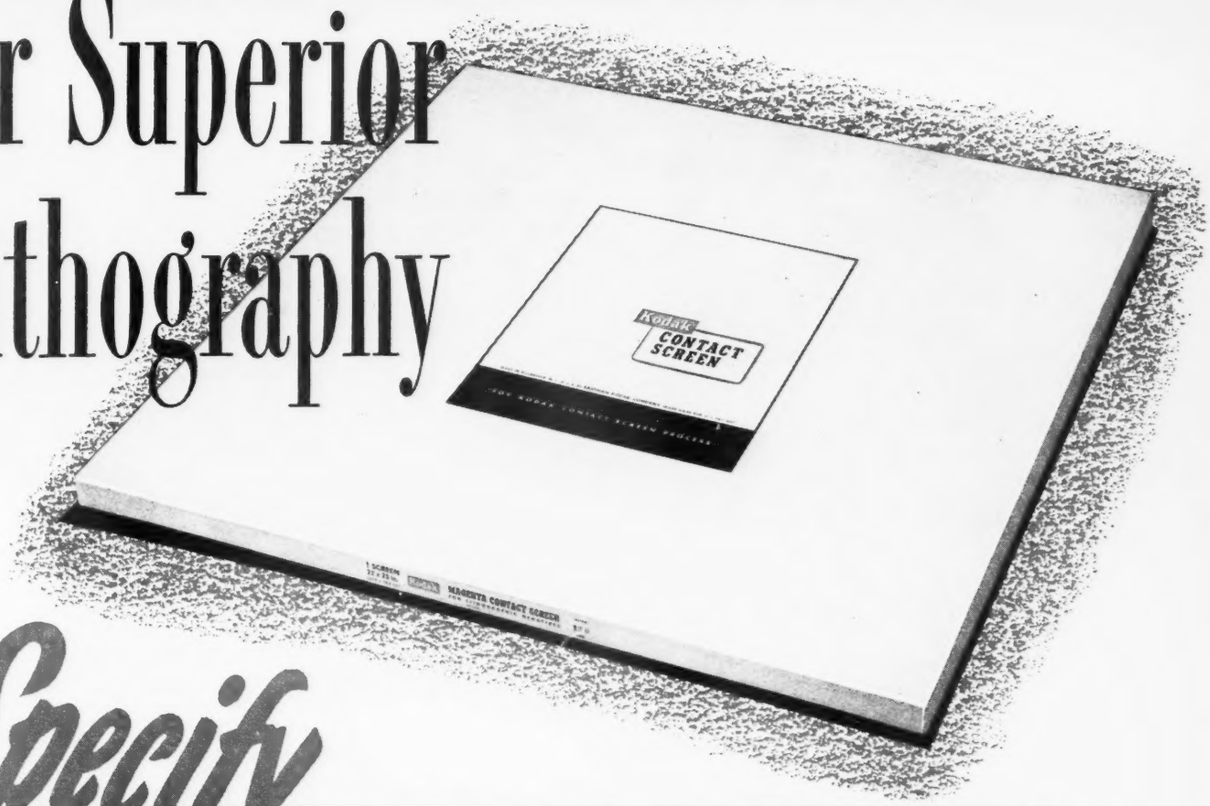
The need of a deeper, sharper grain is indicated when the grain breaks down in

ONE FUNCTION OF GOOD SUPERVISOR

Abstracted from address delivered before convention of National Association of Photo-Lithographers Hotel Statler New York N. Y. October 1949 by Frank A. Myers, Treasurer, Copifyer Lithograph Corp., Cleveland.

A GOOD supervisor is able to prove to management that materials he requests are chosen on the basis of better performance and lower job costs. He keeps records to prove that one brand of ink, or paper or chemical works better in his plant than another. Sometimes he has to show the purchasing department that it is being "penny-wise and pound foolish". "Sure this ink costs more per pound. But it covers better and costs less per job". Or he tells the estimating department, "There was no net saving using the thinner paper because we had to run the press so much slower". If he finds he is throwing the last quarter of a drum of coating solution away, he orders in smaller lots, more often. He orders a more expensive dry plate for the camera if he finds he can make an overall cost saving by reducing hand correction time.

For Superior Lithography



Specify

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Besides bringing a new handling ease and exposure control to the halftone photographer working with both black-and-white and full-color reproduction, the Kodak Contact Screen Processes give a new freedom from the limitations of the conventional cross-line screen. Used in the closest possible vacuum or mechanical contact with sensitized material, these processes eliminate the tone distortions normally encountered with conventional screens. As a result, the halftone photographer is able to retain more of the original copy detail, especially in the critical highlight and middletone areas, than is possible by any conventional method.

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See for yourself the superb lithographic halftone reproduction the Kodak Contact Screen Processes make possible by writing today for your free copy of the new booklet, "The Kodak Contact Screen Processes for Photolithography." Just address a postcard to Department 8, Eastman Kodak Company, Rochester 4, N. Y.

GRAPHIC ARTS DIVISION

Eastman Kodak Company

Rochester 4, N. Y.

Kodak
TRADE-MARK

SUPERVISORS DEAL WITH PEOPLE
GET WORK DONE THROUGH PEOPLE

Abstracted from address delivered before convention of National Association of Photo-Lithographers Hotel Statler New York N. Y. October 1949 by Frank A. Myers, Treasurer, Copifyer Lithograph Corp., Cleveland.

A GOOD supervisor knows how to deal with people. Right here is where a lot of supervisors fall down. Many of them have been in the business a long time. They know their plant layout. They can make machines do tricks. They're familiar with the old process techniques as well as the new ones. They know their materials. But they are NOT concerned with human relations.

The papers are full of wailing about decreased productivity. Why don't people work like they used to? People work harder in one industry than another. In our industry people work harder in some plants than others. Why is it that one plant with "experienced" supervisors, modern equipment, and good working conditions can't get their employees to work with a will? In the same town is another plant paying the same wages. They have older machines, poorer working conditions. Their supervisors have no more years of experience—but the boys in that shop really turn out the work. The difference is in human relations. In the second company shop supervisors have found out how to handle people. They tap a reservoir of energy—call it morale if you want—that the first plant doesn't touch.

Good supervision pays dividends. Of all the qualities essential to a good supervisor, that of handling people seems most important. A supervisor cannot get work done except through PEOPLE.

You may say "That's not for me—leaders are born, not made". To that I would answer "Nine-tenths of genius is sweat". We have demonstrated in our own plant that if you have average intelligence and SINCERE desire to help people, you can become a good supervisor. All you have to do is to study the methods and principles of human relations and then apply them. The less skilled you are now, of course, the longer it will take.

the press after 8 thousand sheets have been run from the plate. Of course, this presupposes the fountain solution to be of the proper pH and the cylinder pressures to be correct. Sometimes the pressman overpacks to pick up ink from the bottom of a dot, too deeply etched. Such a procedure will break down the grain, but the emergency measure does enable the pressman to print some of the run from the plate.

Blue prints made on glass to obtain keys to obtain perfect register can also be produced on Vinylite now. The print is in a non-actinic blue that will permit positioning the film in register with the image and the subsequent exposure through the whole, without any hindrance from the key image. The same principle is also used on mounting boards where work is positioned in register with the key.

Presswork

Ink chalked most often when run on coated stock. This trouble was laid to excessive drainage of the vehicle from the ink film. Another way of saying this is to say the ink lacked a binder. Sometimes this is caused by excessive dryers. Mixing 1 oz. of dryers to 1 lb. of ink is found sufficient in most cases, with the ink cut down with a suitable thinner and then brought together with a No. 8 varnish. New offset inks are being supplied that are especially made for coated stocks. A measure of prevention of the trouble may be that of getting the pH value of the coating, a reading of pH 6.2 being found acceptable in one plant.

Where chalking exists on a finished run, salvage may be conducted by a film of overprint varnish or a film of overprint dryer. Spraying the job with a film of cobalt dryer which includes a solvent such as tetrachloride will also save the job.

When a sheet being run on a two-color press shows marks being printed on the first frame to be long on both sides of the back end of the sheet, where does the origin lay? If the stock being run is green the remedy may lie in seasoning the stock, or, if there isn't time, then slides may be used to draw in the paper. Should the press not permit this, then cutting away the underlay may help. Should this trouble occur on many jobs the trouble may be caused by cylinders that are different. Sometimes changing the blanket from one cylinder to the other will help.

Ghosting that occurs on the back portion of a printed sheet of solid color may be caused by the plate not being too grease receptive, or, by the carrying of excessive water on the plate. The introduction of a solid band of color across the front edge of the sheet will increase ink distribution. The use of the McKinley roller on both the front and the back will increase ink distribution also and definitely solve this problem.

Readers are invited by the editor of *Printing Equipment Engineer* to submit information concerning production in their plants.

TAKES GOOD SUPERINTENDENT TO RATION SPACE

Abstracted from address delivered before convention of National Association of Photo-Lithographers, Hotel Statler, New York, N. Y., October 1949 by Frank A. Myers, Treasurer, Copifyer Lithograph Corp., Cleveland.

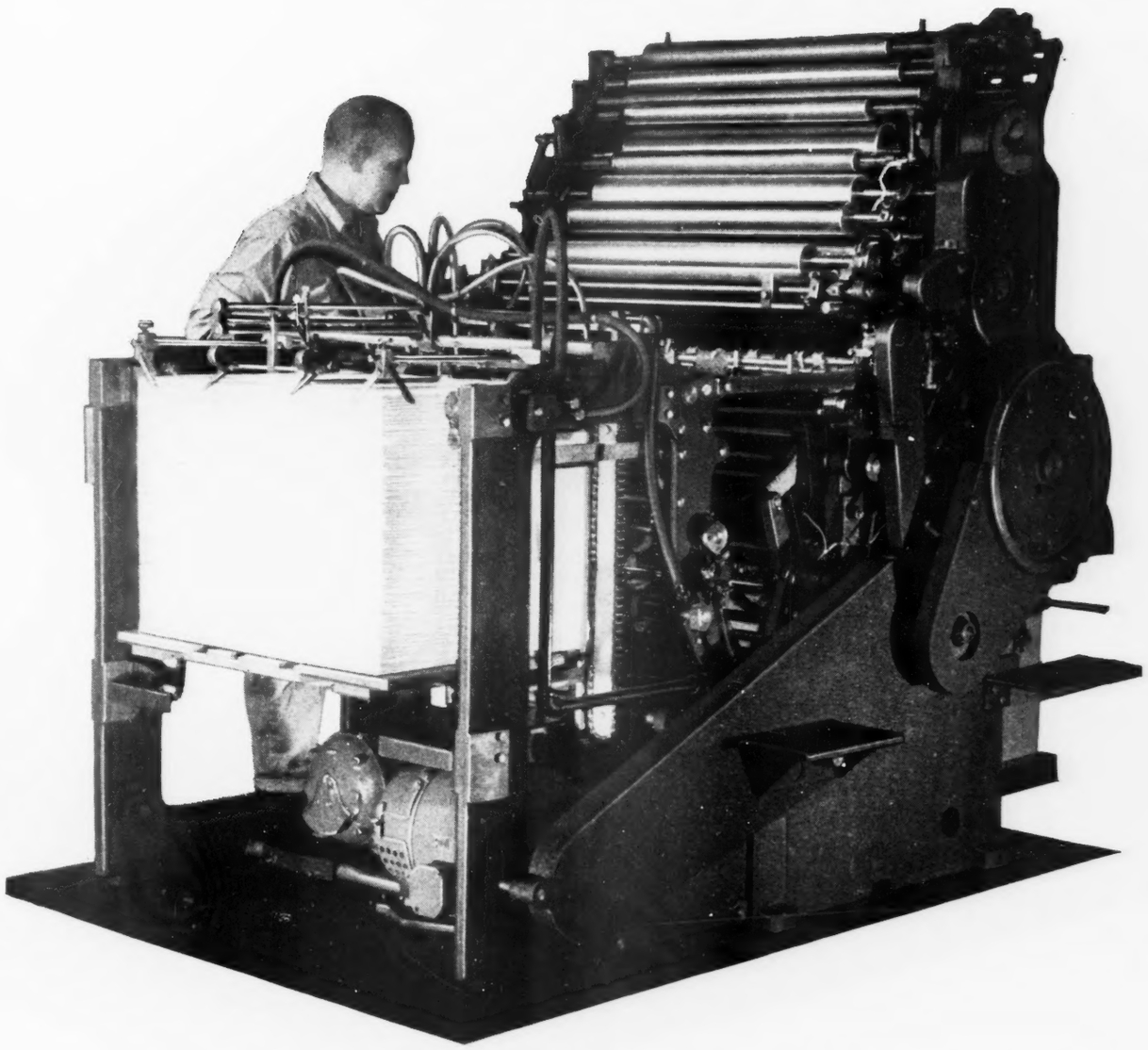
EVERY foreman rightfully feels that his department is the most important. It takes a good superintendent to ration the space available and locate each department to do the best overall job of producing the customers' work at a profit. When your class of work changes, your plant layout may have to change. If you don't want to "just grow like Topsy" you'd better have a master plan roughed out to provide for rearrangement or expansion. In larger companies plant layout may be handled by trained engineers. A good supervisor will be able to tell if the engineer's proposed change is practical. He knows how to figure whether the change will pay off in savings of manpower and material handling.

HANDLING GRIPES IN THE PLANT

Abstracted from address delivered before convention of National Association of Photo-Lithographers, Hotel Statler, New York, N. Y., October 1949, by Frank A. Myers, Treasurer, Copifyer Lithograph Corp., Cleveland.

WE all have gripes. This reminds me of the small boy attending a "progressive" kindergarden who asks the teacher, "Do we have to do just anything we want?" The important thing is for the supervising executive to find out which of the gripes are constructive criticisms and which are justified. DO something to correct such situations—or explain WHY you can't do anything now. Many times you can't find any sound reason for the gripe. It may be the guy had a fight with his wife last night—or an argument with the traffic cop on the way to work. So he comes to work and complains about the first thing that gets in his way. Or it may be his way of expressing himself. The important thing is to listen carefully to the gripe. He will feel better when he gets it off his chest—even though you can't do anything to help him except to listen.

The ATF Chiefs



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Conference Dates *(with organization names and principal officers)*

American Photoengravers Association — 1950 Convention to be held during October in Atlantic City, N. J. Dates and hotel to be announced later. Frank J. Schreiber, Commissioner, 166 W. Van Buren St., Chicago 4, Ill.

ANPA Mechanical Conference—1950 Conference to be held at Hotel Statler, Buffalo, N. Y., June 12, 13, and 14. Chairman of the Committee, Edwin H. Evers, Production Manager, St. Louis *Globe-Democrat*. Manager ANPA Mechanical Dept., Vernon R. Spitaleri, 370 Lexington Ave., New York 17, N. Y.

Fifth District Craftsmen's Conference—1950 Conference to be held in Toledo, Ohio. Place and dates to be announced later. District Representative, Alvin F. Friedrich, 730 E. Washington Blvd., Indianapolis, Ind.; Deputy District Representative, John Morehouse, c/o Harris-Seybold Co., 4510 E. 71st St., Cleveland 5, O.; Secretary-Treasurer, John Fisher, Superintendent, Reardon-Parshall Co., 466 Larned St., N.W., Detroit, Mich.

Great Lakes Newspaper Mechanical Conference—Hotel Schroeder, Milwaukee, January 15, 16, 17, 1950. President W. R. Coddington, Composing Room Supt., Youngstown (O.) *Vindicator;* Secretary Al. P. Oberg, Flint (Mich.) *Journal;* Arrangement Chairman J. E. McMullen, Pressroom Supt., Milwaukee *Journal;* Chairman Mfrs. and Suppliers Committee, George Morrison, Morrison Co., 125 W. Melvina St., Milwaukee 12, Wis.

Illinois Newspaper Mechanical Conference—Secretary-Treasurer, Wilbur L. Augspurger, Peoria (Ill.) Newspapers, Inc.

Intl. Assoc. Electrotypers & Stereotypers — A. P. Schloegel, Executive Secretary, 701 Leader Bldg., Cleveland 14, Ohio.

International Association of Printing House Craftsmen—1950 Convention to be held at Hotel Stevens, Chicago, September 10, 11, 12 and 13. President, Russell J. Hogan, Plant Manager, Blanchard Press, New York, N. Y.; Executive Secretary, Pearl E. Oldt, 18 E. Fourth St., Cincinnati 2, Ohio.

International Typographic Composition Association—1950 convention, Chicago, Sherman Hotel, Sept. 14, 15 and 16. President, Frederick H. Lutz, Lutz Composition, 93 Centre St., Brockton 35, Mass.; Frank M. Sherman, Executive Director, 1015 Chestnut St., Philadelphia 7, Pa.

Iowa Daily Newspaper Mechanical Conference — 1950 meeting in Ottumwa, Ia. President, Howard (Red) Lee, Composing Room Supt., Ottumwa (Ia.) *Courier;* Secretary-Treasurer, Paul F. Kamler, Mechanical Supt., Clinton, (Ia.) *Herald*.

Kansas Newspaper Mechanical Conference— President Vern Williams, Mechanical Supt., Topeka Newspaper Printing Co., Topeka, Kan.

Lithographers National Association — President, Randolph T. Ode, President, The Providence Lithograph Co., Providence, R. I.; Executive Director, W. Floyd Maxwell, 420 Lexington Ave., New York 17, N. Y.

Missouri Newspaper Mechanical Conference — Secretary-Treasurer, O. K. Hammitt, Mechanical Supt., Moberly (Mo.) *Monitor-Index*.

National Association of Litho Clubs — Secretary, William J. Stevens, 317 West 45th St., New York 19, N. Y.

National Association of Photo-Lithographers — Executive Vice President, Walter E. Soderstrom, 317 West 45th St., New York 19, N. Y.; Executive Secretary, William J. Stevens, 317 West 45th St., New York 19, N. Y.

National Graphic Arts Education Association — 1950 convention, Chicago, Sherman Hotel, Sept. 21, 22 and 23. John G. Henderson, President; Fred J. Hartman, Educational Director, 719 Fifteenth St., N. W., Washington 5, D. C.

National Graphic Arts Exposition—International Amphitheatre, Chicago, September 11 to September 23, 1950. Headquarters for National Graphic Arts Exposition, Inc., at Room 802, 105 W. Monroe St., Chicago. President, A. E. Giegengack; Secretary, S. Frank Beatty, Graphic Arts Assoc. of Illinois, Chicago.

National Printing Equipment Association, Inc. — President, R. Verne Mitchell, Harris-Seybold Co., 4510 E. 71st St., Cleveland 5, O.; James E. Bennet, Secretary, 140 Nassau St., New York 7, N. Y.

New England Mechanical Conference — President, Arthur M. Kohler, Production Mgr., Waltham (Mass.) *News-Tribune;* Secretary-Treasurer, Walter C. Crighton, Comp. Room Supt., New London (Conn.) *Day*.

Northwest Mechanical Conference — 1950 Conference, Hotel St. Paul, St. Paul, Minn. Tentative dates, March 10, 11, 12. President, Joseph J. Cory, Chief Composing Room Machinist, St. Paul (Minn.) *Dispatch* and *Pioneer Press*. Secretary-Treasurer, Ralph Carson, Dunwoody Industrial Institute, Minneapolis, Minn.

Pacific Mechanical Conference—1950 Conference to be held in May, San Francisco. Dates to be announced later. President, Fred Gross, Mechanical Supt., San Francisco *Chronicle;* Vice President for the Pacific Northwest, Harry Hale, Production Mgr., Portland (Ore.) *Oregonian;* Secretary for the North, Edw. N. Conley, color press foreman, San Francisco *Chronicle;* Secretary for the South, Fred J. Moyer, Los Angeles *Daily News*.

PNPA-NJPA Joint Mechanical Conference —1950 Conference to be held at Hotel Claridge, Atlantic City, N. J., April 14 and 15. Conference director, Theodore A. Serrill, PNPA Associate Manager, Telegraph Bldg., Harrisburg, Pa.

Printing Industry of America — 1950 convention, Chicago, Palmer House, Sept. 17, 18, 19 and 20. James R. Brackett, General Manager, 719 Fifteenth St. N. W., Washington, D. C.

SNPA (Eastern Div.) Mechanical Conference — Secretary, Tom Tanner, c-o SNPA, P.O. Box 1569, Chattanooga 1, Tenn.

SNPA (Western Div.) Mechanical Conference—Chairman, George N. Guthrie, Pressroom Supt., Little Rock (Ark.) *Gazette;* Secretary, C. W. Tabb, 723 Texas Bank Bldg., Dallas, Tex. 1950 Conference dates and meeting place to be determined later by Executive Committee.

Technical Association of the Lithographic Industry — (TALI)—1950 meeting scheduled for second week in April, Rochester, N. Y. President, Michael H. Bruno, Lithographic Technical Foundation, Glessner House, 1800 So. Prairie Ave., Chicago 16, Ill. Secretary-Treasurer, Geo. W. Wilhelm, 814 N. East Ave., Oak Park, Ill.

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Patents

For The GRAPHIC ARTS

Covering patents issued September 6, September 13, September 20 and September 27.

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issued each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

Binding, Cutting, Perforation

2,481,090. ATTACHMENT FOR A PRINTING PRESS can be readily incorporated into a platen printing press and will enable the ready cutting and perforating of paper and printed material. The base plate of the attachment is adapted to be removably mounted on the press gripper bar. Lengthwise slots in the perforating gripper may be aligned with perforating elements which take the form of two juxtaposed lengths of cord on which strips of soft metal are superimposed. Invented by Don R. Donnell, Los Angeles, Calif. Unassigned. Application August 27, 1947. 4 claims.

2,482,685. THREE-KNIFE TRIMMING MACHINE. The machine uses three knives to trim the head, foot, and front edges of bound books, catalogues, pamphlets, and the like. The machine provides for feeding untrimmed books from a hopper or a binding machine into position to be trimmed at the head and foot by means of a pair of the knives arranged in spaced apart relation. This spacing is adjustable so that books of various lengths can be trimmed. After the head and foot have been trimmed, book is moved through the machine by means of coacting feed rails and friction fingers and then brought to rest against retractable stops which are adjustably spaced in relation to a front edge trimming knife. After front has been trimmed, the retractable stops are retracted to permit book to be conveyed out of the machine. Each cutting block is square in cross section so that the block may be turned as soon as one surface is marred. Invented by Charles L. Moyer, Chicago, Illinois. Assigned to C. L. Moyer Company, Chicago, Ill. Application April 29, 1947. 33 claims.

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LET'S TAKE THE AFTERNOON OFF, LENNY...
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CAN'T MELT METAL FAST ENOUGH TO KEEP UP WITH THE BIG DISPLAY SLUGS.
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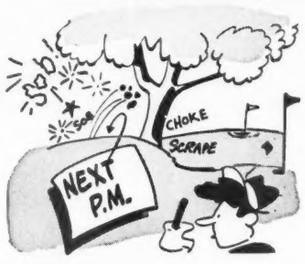
Monomelt's controlled feeding of preheated molten metal assures a constant supply of metal at exactly the right temperature. Every slug, regardless of size, comes out sharp-faced and solid.



THE MONOMELT CO., Inc.

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Composing Room Equipment

2,482,620. ROUTING MACHINE is for routing flat electrotypes and stereotypes and is commonly known as a radial arm router. The router head is swingably supported for movement to one horizontal plane and a work table is vertically movable toward and away from the head. The mechanism for moving the table includes a pair of lifting rods, a horizontal shaft and a pair of arms keyed to shaft and supporting the rods by a pivotal connection. A balancing spring partially supports the shaft and an adjustable second arm supports the spring. A third arm is keyed to shaft so as to rotate shaft and thus raise and lower the first arms and the rods. The movement of the table is initiated by a foot treadle. Invented by William F. Huck, Forest Hills, N. Y. Assigned to R. Hoe & Company, Inc., Bronx, N. Y. Application August 22, 1945. 4 claims.

Feeding, Folding, Delivery

2,482,059. INTERLEAVING ATTACHMENT FOR FOLDERS. Method of interleaving an insert between a fold of a sheet comprises positioning the sheet over a pair of cooperating feed rollers lying in a horizontal plane; positioning the insert upon the sheet edgewise and normal thereto in a plane passing between the feed rollers; releasing the insert with a blade and thereby forming an arris in the sheet and introducing the arris between the feed rollers. The method and apparatus may be used, for example, for folding a sheet of paper, and interleaving an envelope, blotter, or another sheet inside a fold of the first sheet. Invented by Norbert S.

Gates, Emerson, N. J. and Anthony J. Pinto, Brooklyn, N. Y. Assigned to Dreyfuss Art Co., Inc., New York, N. Y. Application March 19, 1948. 4 claims.

2,482,060. INTERLEAVING ATTACHMENT is for the same purpose as that of patent 2,482,059, and relates to a buckle folder. The method includes positioning the sheet over a pair of feed rollers lying in a horizontal plane and positioning the insert upon the sheet edgewise and normal thereto in a plane passing between the feed rollers. After releasing the insert the sheet is buckled beneath the edge of the insert and buckle of the sheet is forced between the feed rollers. Invented by Norbert S. Gates, Emerson, N. J. and Anthony J. Pinto, Brooklyn, N. Y. Assigned to The Dreyfuss Art Co., Inc., New York, N. Y. Application March 24, 1948. 4 claims.

Plate Making

2,482,638. PHOTOGRAVURE. Intaglio printing surfaces can be produced according to this patent without increasing the number of steps or quantities of materials beyond those usually required in conventional photogravure. A transparency may be made for use in preparing printing surfaces, according to this patent, by photographing a picture to be reproduced through a screen, part of the exposure of the picture being given through a stop having a central opening and part of the exposure being given through a stop having peripheral openings. The said peripheral openings and screen are so spaced and angularly related as to produce a pattern of exposed elements having their greatest dimensions in alignment with the greatest dimensions of the transparent elements of the screen. Invented by Oswald R. Schultz, New York, N. Y., Robert F. Nestle, Ardmore, Pa., and Matthew J. Romano, Philadelphia, Pa. Assigned, by mesne assignments, to Triangle Publications, Inc., Philadelphia, Pa. Application April 12, 1943. 14 claims.

Printing Inks

2,482,879. A PRINTING INK of the invention consists of a dispersion of soybean protein containing from 95 percent upwards of pure protein in diethylene glycol, a resin and a pigment, such as carbon black. Protein is peptized by the action of guanidine carbonate. Invented by Alfred F. Schmultzler, Teaneck, N. J. and Donald F. Othmer, Coudersport, Pa. Unassigned. Application October 27, 1944. 8 claims.

Printing Presses and Equipment

2,481,928. PREDETERMINED REGISTERING DEVICE FOR PRINTING ELEMENTS. A device and method is disclosed for predetermining the position in which printing plates of metal are to be mounted in printing machines or presses. The device comprises a plate providing a registering surface on which a printing element is adapted to be layed and placed in a registered position, by means of cooperating registering indicia on the registering surface and the printing element. The means may be suction or vacuum-applying means for releasably retaining the printing element in place on the surface so as to prevent it from shifting out of position. A portable holder for printing element is removable after the said element is placed in position in the press. Invented by William C. Huebner, New York, N. Y. Unassigned. Application September 27, 1944. 4 claims.

2,483,121. PRESS BED DRIVE. Disclosure comprises a rotating shaft held against longitudinal displacement and mounted axially in parallel relation to the axis of the reciprocating bed. Shaft has threads which are crossed in opposite directions and in which a shoe is movable. This shoe is attached to the bed and, accordingly, entrains the bed therewith as it moves along the shaft when the shaft is rotated. Inasmuch as the threads run in reverse directions the shoe, consequently, will be transferred from one to the other, at the ends thereof, and impart to the bed a reciprocating movement. This bed motion is adapted to presses of the type shown in Patent No. 1,543,393, to Bourassa. Invented by Joseph Cyrille Emile Bourassa, Montreal, Quebec, Canada. Unassigned. Application May 3, 1946; in Canada, May 26, 1945. 2 claims.

2,483,260. PRINTING MACHINE is capable of performing fine printing on a variety of smooth or non-smooth surfaces such as rough paper, leather, wood, metal, cellulose film and fabrics

ONLY *Rouse* HAS A POWER MITERER FOR EVERY JOB!

From the smallest job shop up to the largest plant, only Rouse makes a Power Miterer for every type of use.

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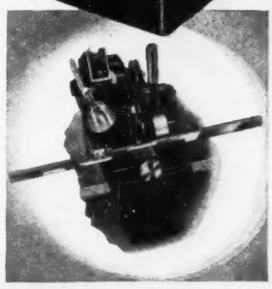

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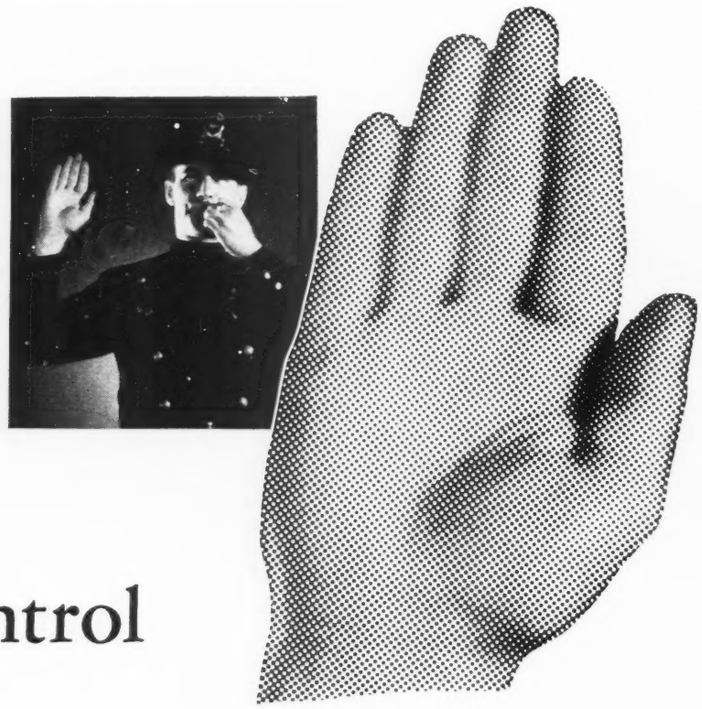
MITERING MACHINES
COMPOSING STICKS
SLUG CLIPPERS
BAND SAWS
LEAD and RULE CUTTERS
TYPE GAUGES

For Patent Research in the U. S. Patent Office, or a prompt estimate on any type of search, address INVENTION, INC., Munsey Bldg., Washington, D.C.

such as canvas, velvet and silk. Printing is effected from a rubber slab to which the impression is conveyed from a block by means of a transfer roller. Invention includes a frame, a reciprocating carriage equipped with transfer and inking rollers, a platen member, a chase for holding the blocks, and a rotary inking drum at the end of the frame adjacent the chase. The platen member is cooperative with the printing slab in feeding and removing sheets of paper, leather, etc. Invented by John Chalmers, Edinburgh, Scotland. Unassigned. Application September 22, 1944; in Great Britain, June 7, 1943. 3 claims.

Artwork Instruction Sheet

AN instruction sheet in which is described the preparation of artwork for rubber plate printing has recently been issued by the Mosstype Corporation. Developed by Mosstype's art department, the sheet includes instructions covering bearers, type selection and color separation, together with explanatory illustrations.



control

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But Burgess isn't satisfied with mere automatic control. Skilled technicians police Burgess quality by constant and thorough testing throughout production. Thus, the finished product is a mat of superior quality, consistent moisture content, and uniform shrinkage—a mat to satisfy the most particular stereotyper.

BURGESS Chrome MATS

BURGESS CELLULOSE COMPANY

Manufacturers and Distributors of Burgess Chrome and Tone-Tex Mats

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Reproduction Proofs

THE demand for reproduction proofs for offset lithography, gravure and photoengraving has increased to such an extent in the past several years that the quality requirements demanded by advertisers and buyers of printing have reached rigid and severe proportions. In many instances, these requirements are not being met due to lack of first-hand knowledge concerning quality reproduction proofs, poor equipment and materials, and other improper conditions which prevail in many plants. With this unsatisfactory situation confronting the industry, Printing Industry of America and the Government Printing Office have released a cooperative technical study appropriately entitled *Reproduction Proofs*.

The study is a compilation of information and experience that has been developed over the years in the actual making of reproduction proofs in leading typographic and printing houses. It should enable any reasonably efficient plant, willing to make a serious study of the methods, ideas, and general procedure outlined, show almost immediate improvement in its results.

Reproduction Proofs deals only with black on white proofs for reproduction by projection in the camera. An explanation of transparent proofs and the purposes for which they may be used appears in the text.

Observing that not just "any good proof" is suitable for reproduction, quality standards and how to achieve them are discussed in the report. Type metal is one of the five vital points to watch in connection with the making of reproduction proofs. Good type can be obtained only from well adjusted typesetting machines and properly proportioned type metals. Under this general heading suggestions are submitted in this joint study for the proper maintenance of matrices, molds, temperature, and casting mechanism which, it is stated, if not adhered to, will result in poor type.

Another vital point discussed is a suitable proof press, its condition, care and operation. The press should be equipped with grippers, have power ink distribution, the packing should be hard, and a kiss impression should be used. Craftsmen with adequate training is a factor also in achieving quality results. The Joint Research Bulletin states that a plant must maintain craftsmen possessing the necessary knowledge and skill and with the ability to judge properly the quality of the proofs produced under their direction.

The remaining points of vital importance, according to the report, are suitable ink and paper and control of plant conditions. In summarizing the information concerning paper, it states that

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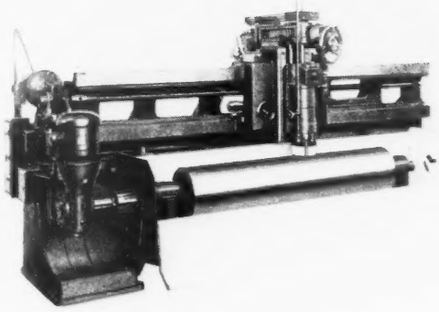

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only paper of the finest quality should be used; it should have a flat, uniformly coated surface and be free from spots. The ink must be suited to the paper selected.

Dust and humidity control, the form and form lock-up, inking rollers, effect of adhesive on proofs, and the drying and handling of proofs are other important points connected with reproduction proofs which the GPO-PIA bulletin deals with.

The report was prepared by O. F. Duensing, President of Graphic Research, Inc., a subsidiary of Vandercook & Sons, in collaboration with Bernard Snyder, American Typesetting Corp., Chicago, a member of the PIA Research Committee and chairman of the composition research group consisting of Carl E. Borklund, Kable Brothers Co., Mt. Morris, Ill.; Oscar R. Daum, R. R. Donnelley & Sons Co., Chicago; and A. J. Farr, Graphic Arts Association of Illinois.

It was examined and approved by a special review board consisting of Thomas W. Ford sr., Harrigan Roller Co., Baltimore, Md.; H. R. Freund, Intertype Corp., Brooklyn, N. Y.; Harry L. Gage, Gloucester, Mass.; Ellsworth Geist, S. D. Warren Co., Boston; Thomas P. Henry, jr., Thomas P. Henry Co., Detroit; Alex G. Highton, Alex G. Highton, Inc., Newark, N. J.; Charles Shapiro, Lithographic Technical Foundation, New York; and Frank M. Sherman, International Typographic Composition Association, Philadelphia.

Members of the PIA Research Committee, whose chairman is Frank Pfeiffer, Reynolds & Reynolds, Dayton, Ohio, also reviewed and approved the report.

The price of *Reproduction Proofs* is $5 a copy for members of PIA; $10 for nonmembers. Copies may be purchased from Printing Industry of America, Inc., 719 Fifteenth St., N.W., Washington 5, D. C.

Ferric Chloride Etching of Copper

THERE is now available to photoengravers a manual entitled *The Ferric Chloride Etching of Copper for Photoengravings*. The manual is a detailed report of the results of investigational work undertaken by Graphic Arts Research Div., Battelle Memorial Institute for Photoengravers Research, Inc. The text was prepared through the collaboration of Roland M. Schaffert, J. Homer Winkler, Luther E. Vaaler and Russell L. Deubner of Battelle.

Inasmuch as the effectiveness of etching techniques has been largely dependent upon the knowledge and skill of the etcher, and because this personalized skill of the etcher may vary from plant to plant, it seems that the present book should be a great value to photoengraving firms. The effectiveness of this book lies in the determination of various factors entering into ferric chloride etching of copper plates. The purpose of the investigational work undertaken by Battelle was to determine what factors influence the etching rate and tonal loss in this step of the photoengraving process. Through the results of Battelle's work, it is now possible to control etching in much the same way that photographic development is controlled.

In the introduction, the authors state: "The effects of such variables as Baume' (solution density), temperature, and concentration of dissolved copper on the rate and quality of the etching are discussed briefly. Optimun conditions for etching in trays or paddle machines are proposed and the necessity and suggested methods of controlling these conditions to yield uniform results are presented. Equipment for use in control is also described."

The main purpose of the book is to simplify the engraver's job. Etching procedures vary considerably from plant to plant. It is stated by the authors that "the individual etcher develops a system which he considers satisfactory for his requirements and the results obtained are mainly due to his craftsmanship . . . While an etcher knows just how much etching should take place in a given 'bite' (etching period) he never knows how much time will be required to accomplish the 'bite' . . . However, such a high order of workmanship is required of photoengravers that it would be beneficial to simplify his job wherever possible."

In the treatise it is shown that dissolved copper affects primarily the rate of etching. The question then arises as to how long an etching solution should

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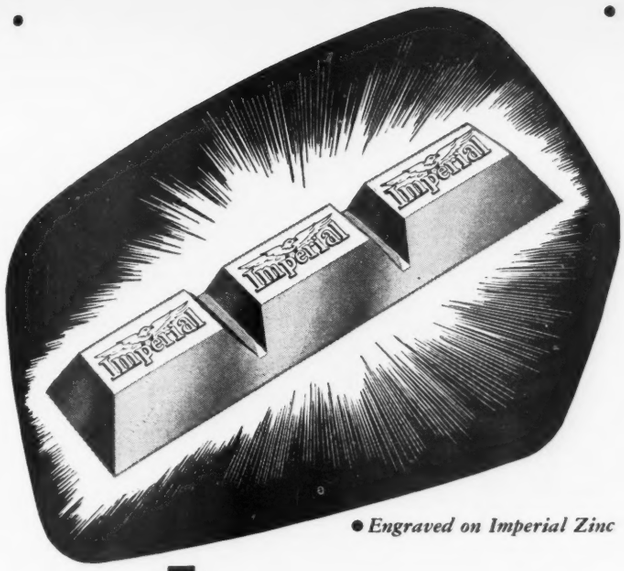

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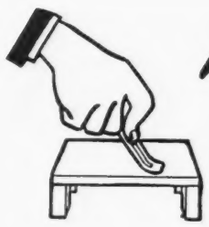

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be used. Factors such as the cost of the solutions and the time required to replace spent baths must be balanced against the time loss due to slower etching rate. This is a matter for individual decision and is dependent upon the usual procedures for each plant. Once the amount of use of a bath should have is established, some method of control should be employed so that the amount of usage for each bath is the same. This is best done by determining the amount of dissolved copper in the bath periodically during use. Means for such control are presented.

One of the interesting conclusions stated in the book is that all of the investigational work was done with only two or three brands of iron chloride. The authors conclude that after examining samples of iron chloride from other suppliers, and although the etching rate varied somewhat from sample to sample, the differences were not sufficiently large to be significant from a practical standpoint. Each sample was adjusted to 40 deg. Baume'. If ferric chloride is obtained from a reputable source the etching properties of the solution should be quite similar to those discussed in the manual.

Recommendations for controls during the etching process are made. These appear to be simple and easily used.

Printing Equipment Engineer has always espoused development of control methods in any process employed in the Graphic Arts industries. The results of the investigational work undertaken by Battelle for Photoengravers Research, Inc., cost lots of time and money. We feel that this book is a distinct contribution to the photoengraving process inasmuch, as stated above, it is a means for simplifying the work of the highly skilled craftsman and puts what might be termed an "art" in the category of skilled craftsmanship by means of authoritatively established control methods. The skill of the craftsman still is needed, however, but if he will use the information in the book he will be a more highly valued member of his firm because a consistently better product will be produced.

The Ferric Chloride Etching of Copper for Photoengravings—By Messrs. Roland M. Schaffert, J. Homer Winkler, Luther E. Vaaler and Russell L. Deubner. Size, 6¼ in. by 9½ in. 32 pages, well illustrated; hard bound in rust fabric, black and gold stamped. Price $3.50 per copy. Order direct from Photoengravers Research, Inc., 505 King Ave., Columbus 1, Ohio.

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Sigmund Ullman Moves

M. J. Hoover, Eastern General Manager of Sigmund Ullman Co., Div. of Sun Chemical Corp., has announced that the company's laboratories and service station have been moved from the Bronx, N. Y., to new quarters in Long Island City, N. Y. The recent move also includes the laboratories and service stations of two other Sun divisions under Mr. Hoover's jurisdiction, the Eagle Printing Ink Co. and Frank H. Stevens Co. (Domestic). The new location is near the company's offices at 10th St. and 44th Ave.

Photo-typesetting

(Continued from Page 28)

words, the lamp rays arrest movement of the negative letter-character in the revolving disk during exposure of the film. At the other side of the disk and also at right angles to it but in line with one of the apertures in the whirling disk is a lens system and the film carrier. Although our reporter did not actually see the film carrier mechanism, we assume that it is supplied with suitable fixed camera "shutter" mechanism which will be positioned in consonance with the set-width of the maximum width of the widest letter character in the font. Thus it will be seen that when an impulse is created by one of the coded characters a beam of light is triggered by a photographic cell. The light beam passes through the selected negative bearing the proper letter character on the film in the rapidly revolving disk, into a lens system focused on the photographic film.

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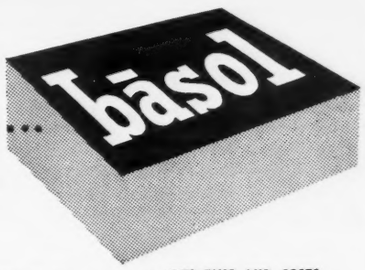

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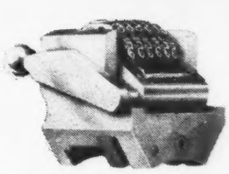

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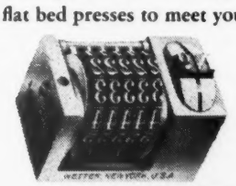

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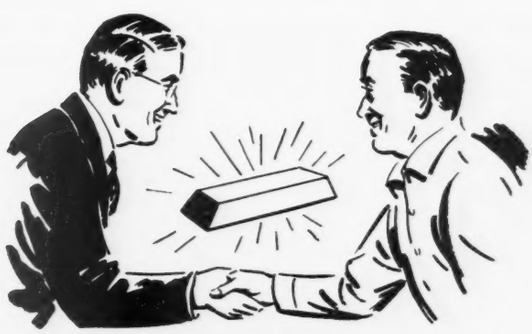

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which has been photographed, so that the next unexposed portion of the film will be ready for photographing or exposing of the next succeeding letter character.

It was stated that the film exposing mechanism of the present (laboratory) model machine will expose the film at about six characters per sec, or maybe an average of about 3 times the straight-ahead production from manually operated hot-metal machines. Of course, the operating capacity of the automatic photograph unit is twice, or it can be many times, the sustained speed of the Lumitype keyboard operator.

For regular production purposes in a "composing room" on future production models the trick will be to supply a line storage device containing any amount of type composition to permit sustained operation of the photographic unit automatically. In answer to a query from the floor at one of the ITCA conference sessions, Mr. Garth said that on the present laboratory model only one line-storage (memory) device is employed. This goes into action immediately after the operator has pressed a release key so that he is free to go ahead composing the next line of copy. In the future, however, a line-storage device consisting of paper tape, magnetized tape or magnetized wire will be utilized. Thus by the employment of multiple line-storage devices, the actual automatic exposure of the film may be done at any time subsequent to the keyboarding operation.

Spacing between lines may be accomplished in an infinite range of spacings. Lines can be overlapped in relationship to each other. Mr. Garth made this explanation merely in order to indicate flexibility of between-line "leading." There is no horizontal or vertical spacing limitation.

In future production models type characters of same point size or different point size and face can be mixed in the same line at will.

In tabular composition, vertical rules can be included in the composition and will be taken care of automatically in the photographing unit.

Mr. Garth explained that on future machines it is planned to supply a drum in place of the glass disk as used on the present laboratory model. The drum will be probably 5 in. diam. It is possible to supply as many as 20 fonts in negative form around the periphery of glass sections, each font containing 512 characters or a total of 10,240 characters. The stroboscopic lamp will be positioned at a fixed point inside the drum. Through manipulation of a selector the operator can change quickly from one type face to another, or the machine can do it automatically. A three-lens system can be employed. Each lens will be capable of producing six point sizes, or a total of 18 point sizes in all. If necessary or desirable, more can be used.

Stripping Mechanism

One of the contemplated developments, said Mr. Garth, is an automatic stripping mechanism. The purpose of the machine will be to make corrections in previously composed matter, to insert folios, page numbers and running heads and to automatically rephotograph a new film all ready to be used by the platemaker.

He explained operation of the machine by stating that when the proofreader reads the film he places a code mark at one side of the line or lines containing errors. Lines or paragraphs can be code-marked in addition to the proofreader's correction marks for deletion. The corrected film is then given to the operator who makes the corrections on a new film. Each of the corrected lines will be marked with similar code-marks. The original film and the new film are fed into the automatic stripping machine simultaneously. Garth said the automatic stripper will be a rephotographing or makeup machine and in effect the technique employed will be similar to the equipment employed by the film industry. In operation, the machine will photograph a new film from the original composition, until one of the code signals indicated by the proofreader, "tells" the machine to shift to the corrected film. After the corrected line or lines have been photographed on the third film, the automatic stripping machine is shifted back to the original film and continues operation until another code signal appears at the end of the line containing an error. The machine can operate automatically at 10 lines per sec.

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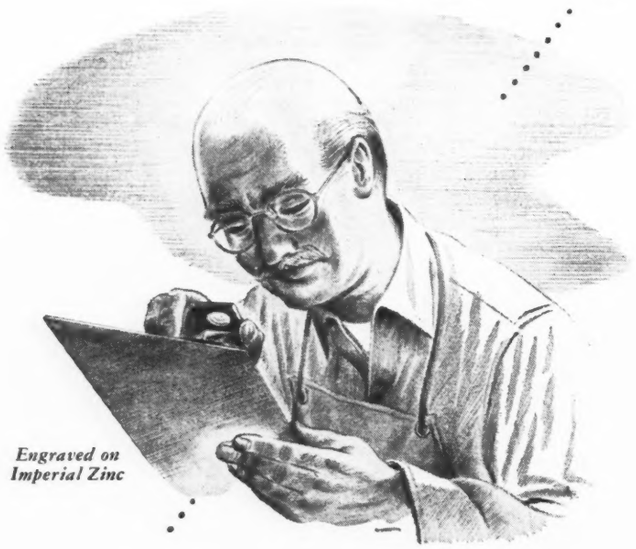

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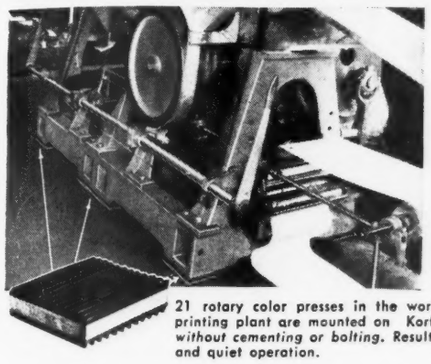

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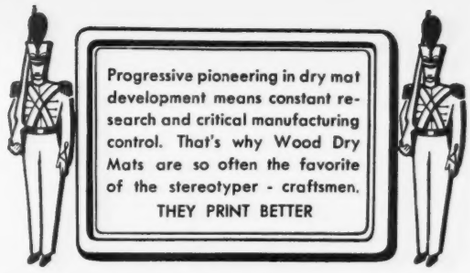
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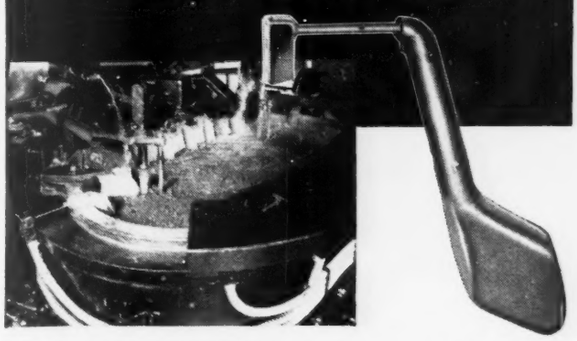

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Plastic Sheet Printing

California Cylinder Engravers has announced that the firm is now tooling to supply printing in one or more colors on sheet plastic. Special presses have been designed and are now being built. Solids as well as type may be used, it is claimed, and the ink dries before leaving the press.

Die cutting of sheet plastic into special shapes and other fabrication will also be done, according to the announcement. The firm will continue its production of engraved cylinders for the printing of milk cartons and other packaging, for the pottery and textile industries and general photoengraving.

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Reproduction Proofing

(Continued from Page 23)

top quality results in transparent or black on white reproduction proofs even if the right equipment was used. Turning out proofs suitable for reproduction purposes, in the speaker's opinion, is a critical operation and involves more than the right inks, paper, acetate, rollers, or a suitable proof press. For no less than 50%, and perhaps as high as 75% to 80% of the results obtained are dependent upon the skill, experience, knowledge and effort of the operator.

In addition, there are other factors which might affect the quality of either black and white or transparent proofs, such as humidity, temperature and plant conditions. To what extent these elements have a bearing on the results obtained will be studied by Vandercook Research, Inc. in the hope of arriving at some practical solution or conclusion to pass on to the industry.

There are no less than five requirements for making transparencies. These are (1) Good type, (2) A critical operator with experience and sufficient ambition to strive for constant improvement, (3) A suitable ink, (4) Acetate of the proper gauge and quality, and (5) A precision proof press equipped for handling acetate and mechanically capable of delivering top quality proofs.

Watch the Pitch Line

Too often, the speaker cautioned, poor proofs are also the direct result of improper handling of the machine, poor maintenance such as infrequent lubrication or lack of cleanliness, and failing to keep the machine properly adjusted and rollers accurately set. He illustrated the latter by stating that the particular Vandercook proof press on which most transparencies are pulled have a cylinder ground to 0.070 in. and that the packing, therefore, should not exceed this more than 0.002 in. to 0.003 in. including the sheet to be printed. Some operators may even overpack or underpack their cylinders unintentionally by failing to actually check the thickness with a gauge or micrometer. In an operation as critical as transparent proving, it is not wise to take for granted that a certain number of tympan sheets plus the blanket will give the desired thickness. He suggested that composing room press operators, like skilled pressmen, should place greater value on the importance of pitch line and, generally, maintaining the printing accuracy of their proof presses.

As another example, Mr. Duensing believes that form rollers are not checked often enough in many plants, especially when reproduction proofs and transparencies are involved. He believes that rollers should be checked at least twice a day, and preferably more often, in order to keep them set to the maximum accuracy.

Keep Equipment Clean

Stressing the importance of cleanliness, the speaker referred to R. O. Vandercook, founder of Vandercook & Sons, Inc., who was one of the earliest and strongest advocates of getting maximum results and service from equipment by keeping it clean. Cylinder bearers cannot ride the bed rails if gum or dirt is permitted to accumulate between them. The press should be kept clean and thoroughly gone over periodically. Where plant conditions permit, it might be advisable to isolate the proving department for fine proofs, or at least keep the press covered when not in use.

Don't Dabble With Materials

Referring to the numerous brands of ink and paper on the market, the speaker questioned the wisdom of persisting in dabbling with many grades and types rather than choosing one combination and experimenting with it until the desired results are obtained, or sufficient tests have proved the combination will not work. Mr. Duensing stated that the Vandercook Company does not sell ink,

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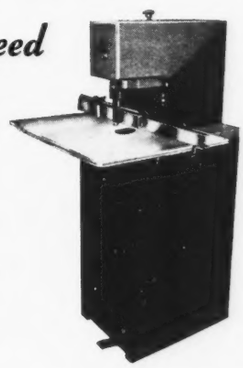

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Mechanical and production executives are invited to submit to the editor mechanical or production helps which have been devised in their plants. Our readers will be glad for the information.

paper or acetate, but offered to supply a list of various inks and materials which have been found successful in typesetting plants.

It should be remembered that inks for an absorbent material like paper differ from inks intended for use on a non-absorbent surface like acetate or glassine. It should also be borne in mind that there are at least two distinct types of ink for transparencies—one that produces a sharp, opaque impression on one or two sides *without* dusting, and the second which needs dusting in order to get an impression of sufficient opaqueness.

Acetate Proofing Stock

Mr. Duensing discussed briefly the various types of acetate available and used in many of the typesetting plants throughout the country. One of these is Eastman's Kodapak, which comes in three weights; the second, a product of DuPont and available in two types in five different gauges, from 0.0008 in. up to 0.002 in.

When feeding acetate to the grippers, extreme caution must be used to avoid wrinkles or any stretching action which might throw the dual impression out of register, or result in other imperfections. Although 0.0015 in. acetate has been recommended and most widely used up to now, in Mr. Duensing's opinion experiments should be made with acetate of 0.003 in. thickness, mainly because it is easier to feed to the grippers.

Mr. Duensing also suggested that perhaps we had arrived at a stage where the help of manufacturers should be sought in developing a special acetate for proving purposes. For example, experiments with an Eastman acetate, which has a matte finish on one side, opens the possibility of getting the desired sharpness and opaqueness with a one-sided impression that requires no dusting. Another Eastman sheet, having one side gummed, might suggest that manufacturers could develop an acetate with a special coating or chemically treated surface to increase its receptivity to ink.

The speaker declared he was unable to give information at this time on an adhesive which could be applied to the printed side of a transparent proof. The most desirable adhesive would permit the proof to be (1) Pasted down, and (2) Removed without affecting the surface on which it was pasted or the type impression. He said that Vandercook Research hopes to devote some time to this problem.

Troublesome Points

Ofttimes, the troubles of operators getting good transparencies arise from their failure to follow recommended procedure, as outlined in a special Vandercook bulletin, namely (1) The proofer fails to take the three suggested impressions on the offset blanket, (2) The acetate or glassine is improperly fed to the grippers, (3) The acetate is not carefully smoothed out before the cylinder carriage is put into motion, (4) The acetate is not fed to go around the cylinder smoothly and easily, (5) The second impression on the acetate is not made, or (6) The finished proof is improperly handled.

In discussing the operation of dusting proofs, Mr. Duensing said it was the hope of Vandercook Research, Inc. to carry on experiments which would eliminate this operation entirely. Some offset-lithographers, art studios, and other users of transparencies are unable to use proofs dusted with lamp black, carbon black, or a similar material—while many gravure plants use only bronzed proofs. To minimize the spread of dust, the operation should be confined to a drawer or cabinet so as to help prevent particles floating into the press mechanism or nearby working areas. For dusting black proofs, iron oxide black has been found satisfactory in many plants, and titanium oxide for white.

Discussion Period

In answer to a question from the floor it was stated that some gravure platemakers prefer a glassine bronze proof because, possibly, in their work it is easier to handle than acetate. Also, dust particles from the black dusting element cling more readily to a matte surface whereas bronze particles do not stick to the stock.

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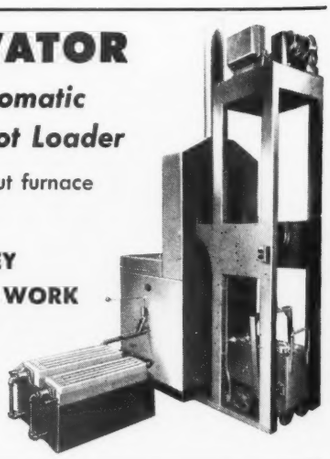

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E.B.CO Offset Press Bulletin

FEATURES and specifications of the E.B.CO 22 in. by 34 in. Offset Press have been published in a four page bulletin issued by Electric Boat Co., Printing Machinery Div. A total of 17 illustrations are used in describing the exclusive features and dimensions of the press. The press has a speed of up to 6,000 impressions per hr. and will take a max. sheet of 23 in. by 36 in. Max. printing size is 22½ in. by 35 in. The 8½ in. by 11 in., two-color bulletin was printed by offset.

Corrosion Resistant Bulletin

CORROSION resistant materials and equipment are illustrated and described in Bulletin M recently issued by U. S. Stoneware Co. Printed in two colors, the 8 pages deal with Tygon tubing, gasketing, protective coatings, lining materials, grinding and mixing equipment, chemical stoneware, white chemical porcelain, corrosion-resistant masonry and tower packing.

Technological Typesetting

(Continued from Page 25)

if a telephone directory was set and photographed in the management or editorial offices of the telephone company, and negatives then sent to the printer."

The speaker then remarked: "Someone has stated that for every action taken there is a compensatory action. So let us take a view of our problem from another angle. Better Monotype machines are being made, more new type faces are being developed, new and faster presses are being built. Thus the old-established and fundamental printing methods are meeting the issue of a New Competition in the form of an increase in efficiency which is really remarkable . . . There have been improvements in rotary presses, chemical and mechanical methods for fast-drying of inks; new and improved equipment in photoengraving plants, drastic changes which have greatly facilitated the making and have increased the quality of electrotypes. All of these are proofs that letterpress printing is meeting the New Competition in many classes of printing, especially in the long-run book and magazine fields.

By explaining the production procedure for printing the *Congressional Record*, for example, he indicated that the present flexible hot-metal type-composing equipment (388 units in all in the GPO) could withstand inroads of the new text composition processes. He concluded this part of his discussion by saying: "Commercial printers unquestionably can present similar word pictures of large scale typesetting operations where every minute counts in the meeting of deadline schedules, and where the accumulated efficiency of many years of experience makes the flexibility of hot-metal typesetting an absolute necessity."

Mr. McLean's closing remark was rather prophetic in nature. It was as follows: "The tremendous growth of our reading public and the unprecedented demands for communication by means of the printed word make the application of new methods a necessity in order to satisfy the ever-increasing need for more books, more periodicals—more printing. The New Competition is here and it is going to stay."

Following Mr. McLean's address, Chairman Powell introduced J. Raymond Tiffany, executive secretary and general counsel for the Book Manufacturers Institute, New York. Tiffany spoke upon business conditions.

Lickfield Discusses Specimen Books

William E. Lickfield, Editor of the *Trade Compositor*, presented a very neat and comprehensive explanation of *Your Specimen Book*. He exhibited a number of single and two-page layouts suitable for use by the typographic compositor. These ranged in utility from the small plant to the more elaborate layout for the larger plant. One of his statements was to the effect that after studying the subject for some time he had come to the conclusion that the Universal Specimen Book was possible but not probable, because every typesetter feels that his business is just a little different than the other fellow. Every typesetter wants his specimen book to be different for the same reason that every man wouldn't want to wear the same pattern necktie as the other fellow. Another element is that the differences in typesetting equipment discourages the Universal Specimen Book idea. He did advocate however, two sizes—8½ in. by 11 in. and 9 in. by 12 in.—because they would fit into a standard letter file cabinet drawer. A type specimen book should be prepared almost entirely for the convenience of the customer and should be suited to his use even if the sponsoring typesetter doesn't like the arrangement. Mr. Lickfield felt that so far as he is concerned letterpress gives the best results in presenting type faces. Unless well done, offset tends to gray in letter reproduction. Perhaps some way can be found to use both processes in type specimen book production. The selection of mechanical binding should be made to fit your business. Mr. Lickfield thinks copy dealing with typography or a related subject should be used in the type specimen book. "Use as many characters in the font as possible," he advised. If letters have certain characteristics, show them. Show also characters with varying widths. Use blank pages to tell the customer about your business. He made other pertinent suggestions. His final statement was: "In a type specimen book we are addressing ourselves to a parade —not a crowd. New type buyers and users are continually coming along."

Production Cost Budgeting

Oscar Hoffman, General Manager, Superior Typesetting, St. Louis, addressed the audience upon the subject of *Our Experience in Budgeting Production Costs*. His address was most informative to ITCA members present.

ADVERTISERS' INDEX FOR NOVEMBER 1949

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American Publishers Supply, Inc. 66
American Type Founders 11, 51

Baum, Russell Ernest 65
Beall, Jack, Vertical Service 64
Beveridge Paper Co. 65
Bingham's, Sam'l, Son Mfg. Co. 4
Booth, The E. A., Rubber Co. 64
Burgess Cellulose Co. 56

Central Compounding Co. 7
Certified Dry Mat Corp 61
Challenge Machinery Co., The 8
Chemco Photoproducts Co., Inc. 2
Cline Electric Mfg. Co 67
Cottrell, C. B., & Sons Co. 45

Dexter Folder Co. 16
Dickerson, Robert W. 67

Eastern Newspaper Supply, Inc. 61
Eastman Kodak Co 49
Edes Mfg. Co 60

General Electric Co. 9, 63
Goss Printing Press Co., The 53
Graphic Arts Products 58

Haco Company, The 66
Hammond Machinery Builders, Inc. ..... Inside back cover
Hills-McCanna Co 57

Imperial Type Metal Co. 59, 62
Intertype Corporation ..... Outside back cover

Klingrose Div. American Type Founders 12, 13
Korfund Co., Inc 63

Linotype Parts Co 57, 59
Ludlow Typograph Co 67

Matrix Contrast Corp 18
Mergenthaler Linotype Co. 46, 47
Miehle Printing Press & Mfg. Co. 15
Miller Printing Machinery Co. 3
Mohr Lino-Saw Co 67
Monomelt Co., Inc 54
Montgomery Co., Inc 67
Morrison Co., The 14

New England Newspaper Supply Co. 65
Nolan Corporation 66
Noporsol, Inc 61

Offen, B. & Co. 67

Pereira, Morton L., & Associates 63

Rapid Roller Co 17
Richards, J. A., Co 67
Rouse, H. B. & Co. 55

Scott, Walter & Co. 6
Sta-Hi Corp 1
Standard Process Corp 57
Star Cement Co 67
Strong Electric Corp 10
Super Speed Printing Machinery, Inc. 65

Tingue, Brown & Co. 66

Wetter Numbering Machine Co. 61
Wood Flong Corp 63
Wood Newspaper Machinery Corp ..... Inside front cover

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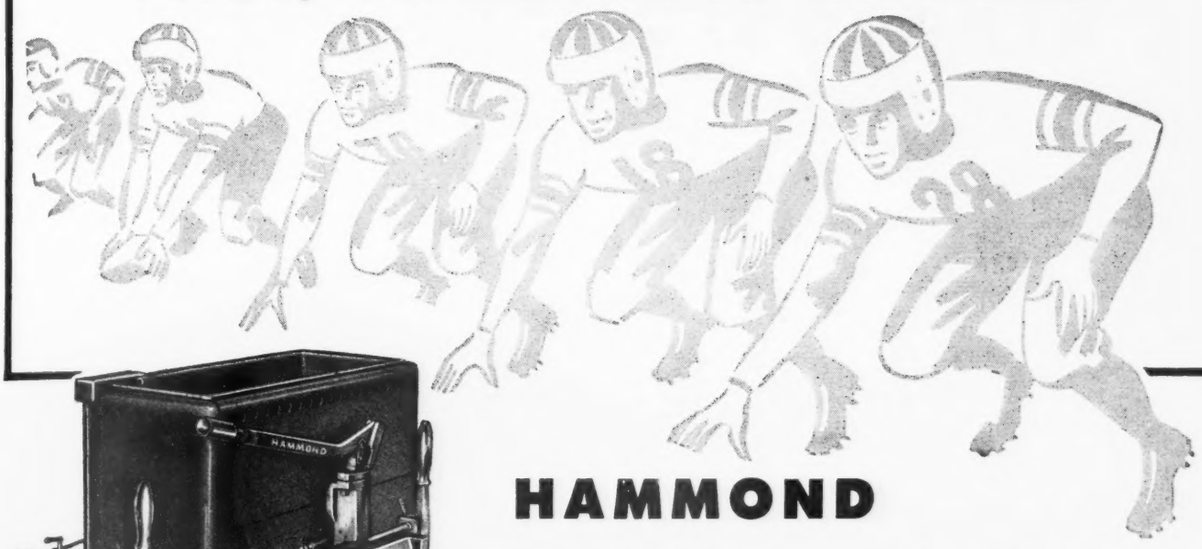

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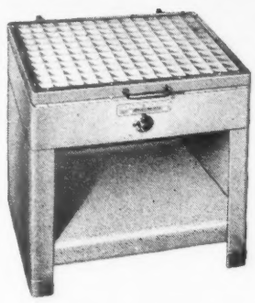

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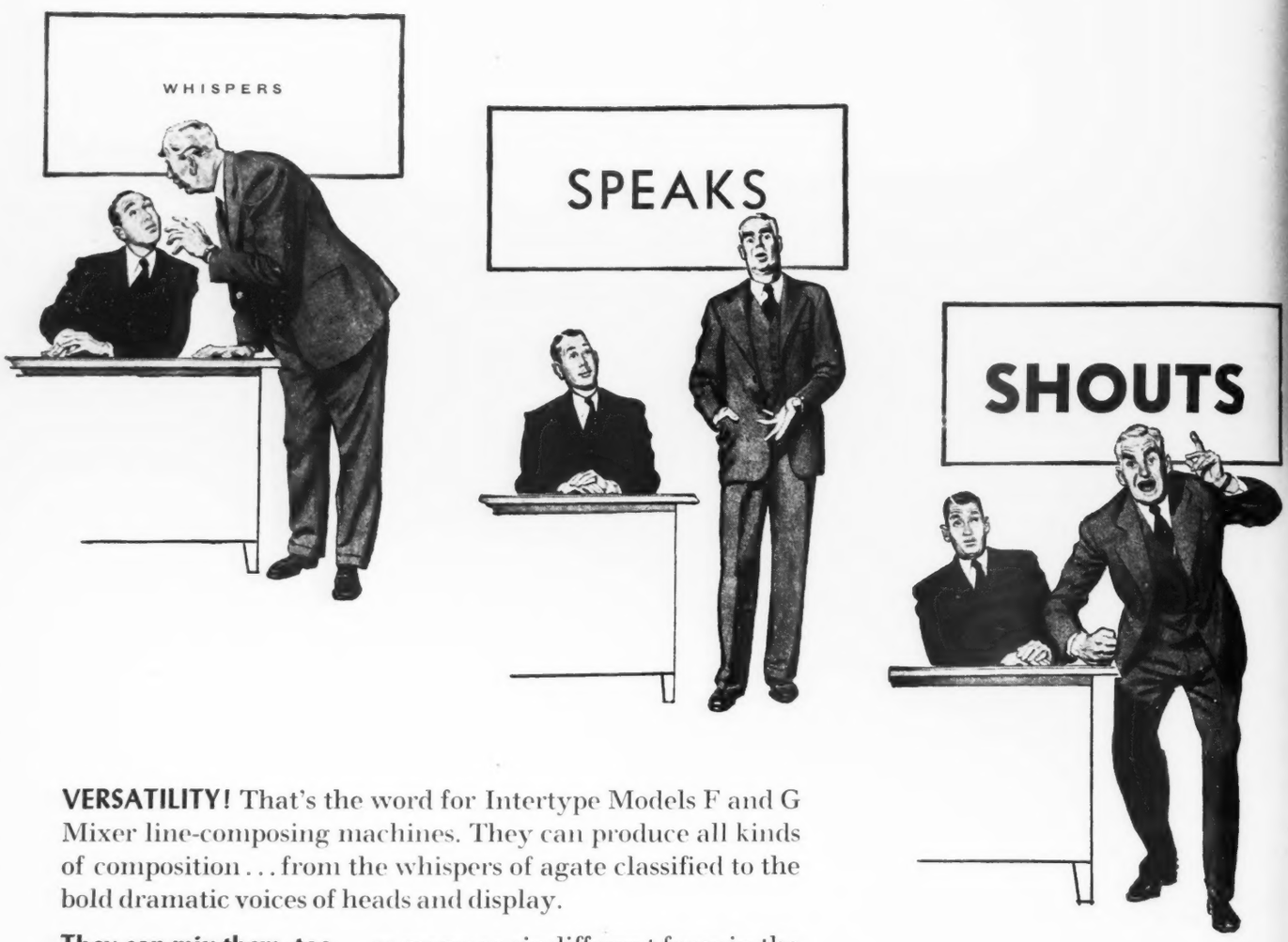

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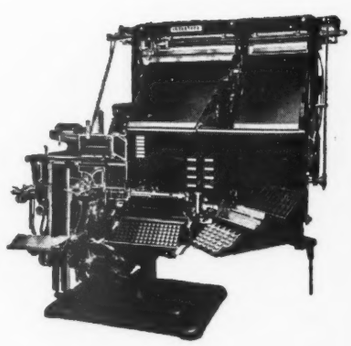

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